

VOID SHEET

TO: License Fee Management Branch

FROM: RIII - _____

SUBJECT: VOIDED APPLICATION

Control Number: 301422
Applicant: Great Lakes Soil & Environmental Consultants, Inc.
License Number: 13-26735-01
Docket Number: 030-34173
Date Voided: 10/17/96
Reason for Void: Licensee cannot respond to 7/9/96
deficiency letter at this time. Licensee may resubmit at a
later date.

Mutand F. Vabe 10/17/96
Signature Date

Attachment:
Official Record Copy of
Voided Action

FOR LFMB USE ONLY

☐ Refund Authorized and processed
☒ No Refund Due voided after review
☐ Fee Exempt or Fee Not Required

Comments: _____

Log completed ☒
Processed by: JAC 10/31/96 9/1

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9611010153 961017
PDR ADOCK 03034173
C PDR

ML
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SD

SV

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: PROGRAM CODE:
: STATUS CODE: 3-----
: FEE CATEGORY: -----
: EXP. DATE: 0 -----
: FEE COMMENTS:
: DECOM FIN ASSUR-REGDT-----
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LICENSE FEE TRANSMITTAL

1. APPLICATION ATTACHED
APPLICANT/LICENSEE: GREAT LAKES SOIL & ENVIR. CONS. INC
RECEIVED DATE: 960611
DOCKET NO: 3034173
CONTROL NO.: 301422
LICENSE NO.:
ACTION TYPE: NEW LICENSEE

2. FEE ATTACHED
AMOUNT: 400
CHECK NO.: 7057

SIGNED
DATE

For D. Keating
 100-13-96

B. LICENSE FEE MANAGEMENT BRANCH (CHECK WHEN MILESTONE 03 IS ENTERED / /)

1. FEE CATEGORY AND AMOUNT: 3P \$550

2. CORRECT FEE PAID. APPLICATION MAY BE PROCESSED FOR:
AMENDMENT
RENEWAL
LICENSE

3. OTHER

SIGNED
DATE

SC 7/9/96

JUL 22 1996

Log *Jun 8 III*
Remitter
Check No. *1056 1059*
Amount *#400 #150*
Fee Category *3P*
Type of Fee *App*
Date Check Rec'd *6/7/96*
Date Completed *6/7/96*
By *SC*

1996 JUN 17 MON 11:07

(10-94)
10 CFR 30, 32, 33
34, 35, 36, 39 and 40

APPLICATION FOR MATERIAL LICENSE

ESTIMATED BURDEN PER RESPONSE TO COMPLY WITH THIS INFORMATION COLLECTION REQUEST: 6 HOURS. SUBMITTAL OF THE APPLICATION IS NECESSARY TO DETERMINE THAT THE APPLICANT IS QUALIFIED AND THAT ADEQUATE PROCEDURES EXIST TO PROTECT THE PUBLIC HEALTH AND SAFETY. FORWARD COMMENTS REGARDING BURDEN ESTIMATE TO THE INFORMATION AND RECORDS MANAGEMENT BRANCH (T-6 F33), U.S. NUCLEAR REGULATORY COMMISSION, WASHINGTON, DC 20555-0001, AND TO THE PAPERWORK REDUCTION PROJECT (3150-0120), OFFICE OF MANAGEMENT AND BUDGET, WASHINGTON, DC 20503.

INSTRUCTIONS: SEE THE APPROPRIATE LICENSE APPLICATION GUIDE FOR DETAILED INSTRUCTIONS FOR COMPLETING APPLICATION. SEND TWO COPIES OF THE ENTIRE COMPLETED APPLICATION TO THE NRC OFFICE SPECIFIED BELOW.

APPLICATION FOR DISTRIBUTION OF EXEMPT PRODUCTS FILE APPLICATIONS WITH:

DIVISION OF INDUSTRIAL AND MEDICAL NUCLEAR SAFETY
OFFICE OF NUCLEAR MATERIALS SAFETY AND SAFEGUARDS
U.S. NUCLEAR REGULATORY COMMISSION
WASHINGTON, DC 20555-0001

ALL OTHER PERSONS FILE APPLICATIONS AS FOLLOWS:

IF YOU ARE LOCATED IN:

CONNECTICUT, DELAWARE, DISTRICT OF COLUMBIA, MAINE, MARYLAND,
MASSACHUSETTS, NEW HAMPSHIRE, NEW JERSEY, NEW YORK, PENNSYLVANIA,
RHODE ISLAND, OR VERMONT, SEND APPLICATIONS TO:

LICENSING ASSISTANT SECTION
NUCLEAR MATERIALS SAFETY BRANCH
U.S. NUCLEAR REGULATORY COMMISSION, REGION I
475 ALLENDALE ROAD
KING OF PRUSSIA, PA 19406-1415

ALABAMA, FLORIDA, GEORGIA, KENTUCKY, MISSISSIPPI, NORTH CAROLINA, PUERTO
RICO, SOUTH CAROLINA, TENNESSEE, VIRGINIA, VIRGIN ISLANDS, OR WEST VIRGINIA,
SEND APPLICATIONS TO:

NUCLEAR MATERIALS LICENSING SECTION
U.S. NUCLEAR REGULATORY COMMISSION, REGION II
101 MARIETTA STREET, NW, SUITE 2900
ATLANTA, GA 30323-0196

IF YOU ARE LOCATED IN:

ILLINOIS, INDIANA, IOWA, MICHIGAN, MINNESOTA, MISSOURI, OHIO, OR WISCONSIN,
SEND APPLICATIONS TO:

MATERIALS LICENSING SECTION
U.S. NUCLEAR REGULATORY COMMISSION, REGION III
801 WARRENVILLE RD.
LISLE, IL 60532-4351

ALASKA, ARIZONA, ARKANSAS, CALIFORNIA, COLORADO, HAWAII, IDAHO, KANSAS,
LOUISIANA, MONTANA, NEBRASKA, NEVADA, NEW MEXICO, NORTH DAKOTA,
OKLAHOMA, OREGON, PACIFIC TRUST TERRITORIES, SOUTH DAKOTA, TEXAS, UTAH,
WASHINGTON, OR WYOMING, SEND APPLICATIONS TO:

NUCLEAR MATERIALS LICENSING SECTION
U.S. NUCLEAR REGULATORY COMMISSION, REGION IV
611 RYAN PLAZA DRIVE, SUITE 400
ARLINGTON, TX 76011-8064

PERSONS LOCATED IN AGREEMENT STATES SEND APPLICATIONS TO THE U.S. NUCLEAR REGULATORY COMMISSION ONLY IF THEY WISH TO POSSESS AND USE LICENSED MATERIAL IN STATES SUBJECT TO U.S. NUCLEAR REGULATORY COMMISSION JURISDICTIONS.

1. THIS IS AN APPLICATION FOR (Check appropriate item)

- ☒ A. NEW LICENSE
☐ B. AMENDMENT TO LICENSE NUMBER _____
☐ C. RENEWAL OF LICENSE NUMBER _____

2. NAME AND MAILING ADDRESS OF APPLICANT (Include Zip code)

Sudhakar Rao Doppalapudi P.E
c/o Great Lakes Soil & Environmental Consultants Inc.
1743 Novo Drive
Schererville, IN 46375

3. ADDRESS(ES) WHERE LICENSED MATERIAL WILL BE USED OR POSSESSED

1743 Novo Drive
Schererville, IN 46375

4. NAME OF PERSON TO BE CONTACTED ABOUT THIS APPLICATION

Sudhakar Rao Doppalapudi

TELEPHONE NUMBER
219-865-9023

SUBMIT ITEMS 5 THROUGH 11 ON 8-1/2 X 11" PAPER. THE TYPE AND SCOPE OF INFORMATION TO BE PROVIDED IS DESCRIBED IN THE LICENSE APPLICATION GUIDE.

5. RADIOACTIVE MATERIAL

- a. Element and mass number, b. chemical and/or physical form, and c. maximum amount which will be possessed at any one time

6. PURPOSE(S) FOR WHICH LICENSED MATERIAL WILL BE USED

7. INDIVIDUAL(S) RESPONSIBLE FOR RADIATION SAFETY PROGRAM AND THEIR TRAINING EXPERIENCE

8. TRAINING FOR INDIVIDUALS WORKING IN OR FREQUENTING RESTRICTED AREAS

9. FACILITIES AND EQUIPMENT

10. RADIATION SAFETY PROGRAM

11. WASTE MANAGEMENT

12. LICENSEE FEES (See 10 CFR 170 and Section 170.31)

FEE CATEGORY Source material
Amendment 2, C AMOUNT
ENCLOSED \$ 400.00

13. CERTIFICATION. (Must be completed by applicant) THE APPLICANT UNDERSTANDS THAT ALL STATEMENTS AND REPRESENTATIONS MADE IN THIS APPLICATION ARE BINDING UPON THE APPLICANT.

THE APPLICANT AND ANY OFFICIAL EXECUTING THIS CERTIFICATION ON BEHALF OF THE APPLICANT, NAMED IN ITEM 2, CERTIFY THAT THIS APPLICATION IS PREPARED IN CONFORMITY WITH TITLE 10, CODE OF FEDERAL REGULATIONS, PARTS 30, 32, 33, 34, 35, 36, 39 AND 40, AND THAT ALL INFORMATION CONTAINED HEREIN IS TRUE AND CORRECT TO THE BEST OF THEIR KNOWLEDGE AND BELIEF.

WARNING: 18 U.S.C. SECTION 1001 ACT OF JUNE 25, 1948 62 STAT. 749 MAKES IT A CRIMINAL OFFENSE TO MAKE A WILLFULLY FALSE STATEMENT OR REPRESENTATION TO ANY DEPARTMENT OR AGENCY OF THE UNITED STATES AS TO ANY MATTER WITHIN ITS JURISDICTION.

CERTIFYING OFFICER - TYPED/PRINTED NAME AND TITLE

Sudhakar Rao Doppalapudi, Principal

SIGNATURE

[Signature]

DATE

June 8, 1996

FOR NRC USE ONLY

TYPE OF FEE	FEE LOG	FEE CATEGORY	AMOUNT RECEIVED	CHECK NUMBER	COMMENTS
			\$		
APPROVED BY				DATE	

RECEIVED

JUN 11 1996

REGION III

3014.22
PRINTED ON RECYCLED PAPER

Great Lakes
Soil & Environmental
Consultants, Inc.

Offices in Indiana & Michigan

1743 Novo Dr
Schererville, IN 46375
Ph: 219-865-9023
Fax: 219-865-8919

Engineering, soil and material testing

June 10th, 1996

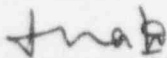
U. S. Nuclear Regulatory Comm.
Dept.: DNMS
801 Warrenville Rd 2nd Floor
Lisle, IL 60532
Attn: Mr. Charles Gill

RE: Application for Material License

Dear Mr. Gill:

We at Great Lakes Soil & Environmental Consultants (GLSEC) Inc are pleased to submit this application form requesting License for storing and using Density Gauges. We have reviewed all the applicable documents (CFR's and Draft guide) prior to applying for permit. We commit to the safety of the gauges and our employees. The completed NRC form 313 is enclosed. As required the information for Items 5 through 12 are provided on separate attached sheets. We are also enclosing a copy of our companies statement of Qualifications detailing our resumes and other qualifications. We are also enclosing a \$ 400.00 check for the licensing Fee. We trust the information supplied to you is adequate. If need any additional information or additional clarifications please do not hesitate to call our office at 219-865-9023. We would very much appreciate a quick response on this matter as were pressed for time due to relatively short construction season.

Very truly yours
Great Lakes Soil & Environmental Consultants Inc.



Doppalapudi S. Rao, P.E.
Principal

Sanjeev Bandi, Ph.D., P.E.
Principal

RECEIVED
JUN 11 1996
REGION III

Application for Material License
NRC Form 313

Items 5 through 12

ITEM 5 Radioactive Material

The following Radioactive source information was supplied by the density gauge manufacturer(Troxler Electronics Inc., Research Triangle, North Carolina) on the most likely gauge to be obtained by our company.

Cs-137 8.0 mCi

Am-241: Be 40.0 mCi

We anticipate a total for 5 density gauges over a period of 5 years. Hence we would like to apply for a license with a maximum of radioactive source equivalent to 5 density gauges.

ITEM 6 Purpose for which licensed material will be used.

The sealed source in the Nuclear Density Gauge would be used to determine the insitu density of the soil during the construction phase of a project. The sealed source will not be lowered into the ground by more than 1.0 foot.

ITEM 7 Individual responsible for Radiation safety program

Radiation Safety Officer(RSO)
Training/Background

Sudhakar Rao Doppalapudi P. E
RSO has a Bachelors and Masters in Civil Engineering. He has been working in this field for more than 9 years. Mr. Rao has obtained his training in Radiation Safety and usage of the density gauges from the course taught by the Illinois training/certification is attached. During the past 7 density gauges. His responsibilities involved safety and provide in-house training to the employees.

Duties/Responsibilities

Duties and responsibilities of our RSO are as follows but are not limited to these.
- Ensure that the sealed source (density gauge) is always under lock and key when not in use.
- Ensure that all the individuals using the gauges are properly trained by the gauge manufacturer and the RSO

- Review emergency procedures with all the individual using the density gauges.
- Ensure personal monitoring devices are used and reports are reviewed frequently.
- Ensure that proper authorities are notified in case of any accidents, damage to the gauge, fire and theft.
- Perform Leak tests every 6 months.
- All the items listed under Appendix C of the Draft Regulatory Guide DG-0008 dated May 1995 will be followed duly.

ITEM 8 Training for Individuals working with the gauges

All the individuals using the density gauges will be trained by the gauge manufacture and also by the RSO. We commit to the safety of the gauges and the individuals operating the gauges. All the individuals will be given refresher training every year and emergency response awareness training every 6 months.

ITEM 9 Facilities and Equipment

At the present time the gauges are intended to be stored in the residential building at the above referenced address. However we do anticipate obtaining an office space in a commercial/Industrial zone in the very near future. The storage space within the existing residential building is restricted and does not include residential living quarters. The sealed source within the gauges will always be kept under lock and key when not in use. During transportation all the gauges will be placed within the locked trunk of the car. Strict emphasis will be placed on the individuals using the gauges to always keep the gauges in the trunk of the car when not in use at the job site. Our company policy is to make sure that the gauges return to its permanent storage place at the end of each working day. If the individual cannot make it back in time to return the gauge to the permanent storage place, all the individuals are stressed to keep the gauges under constant surveillance at their residence. Please note that this option is only under some unforeseen circumstances that the individual could not return to the storage place.

ITEM 10 Radiation Safety Program

Radiation Safety program will consist of the following:

- i) Personal Monitoring Program: All the individuals will be supplied with radioactive film badges to determine their exposure. The exposure limits will be reviewed every month to verify that they do not exceed the 10% of the allowable limit. In addition a control film badge will be located close to the gauge to verify the storage place exposure.

- ii) Leak Testing: all the density gauges will be tested for leaks every 6 months. Commercially available leak test kits supplied by the manufacturer will be used. The leak tests results will be analyzed by the gauge manufacturer and the results will be submitted.
- iii) Maintenance: The density gauges will be sent for regular maintenance and calibration every year. During this the manufacturer services the gauge calibrates and checks for any damage to the gauges.
- iv) Transportation: All applicable NRC and DOT laws will be followed, in addition to the precautions listed above. Each individual will be supplied with a emergency response procedure plan outlining the steps to be taken in case of an emergency such as damage, theft, fire or sealed source getting stuck in the ground.
- v) Annual Audit: Annual audit of the radiation safety program will be performed and the results will be documented for future review.

ITEM 11 Waste Management

Disposal of the sealed source would involve returning the gauges to the manufacture.

ITEM 12 Licensee Fee

As understood from the 10CFR170.12, 10CFR171.11 & 10CFR171.16 since the company's gross would be less than \$350,000 we are submitting a fee of \$ 400.00

*Statement of Qualifications
for
Geotechnical Engineering
Construction Monitoring
and
Geo-environmental Engineering
Services*

for:

GREAT LAKES SOIL & ENVIRONMENTAL CONSULTANTS, INC.

19259 Silver Springs Drive, #201
Northville, MI 48167
(810)449-3210

1743 Novo Drive
Schererville, IN 46375
(219)865-9023

May, 1996

Quality, Service & Commitment

Scope of Services

Scope of Services

Great Lakes Soil & Environmental Consultants, Inc.'s key professionals have extensive experience, advanced academic background to meet even the most demanding needs of geotechnical, construction monitoring and geo-environmental fields. With offices in the Chicago and Detroit areas GLSEC can serve industrial, residential and municipal sectors. GLSEC's personnel have professional licenses in Wisconsin, Illinois, Indiana, Michigan and Ohio. GLSEC's specialities include:

Geotechnical Engineering

- Subsurface Soil Exploration
- Laboratory Testing of Soils
- Slope Stability Analysis
- Settlement Analysis
- Development of Design and Construction Recommendations
- Design of Specialized Foundation Systems
- Geotechnical Seismic Analysis

Construction Monitoring and Material Testing

- Compaction Testing of Fill Material
- Soil Excavation Observation
- On-site Bearing Capacity Determination
- Documentation of Earthwork Quantities
- Pile Driving Monitoring
- Caisson Installation Monitoring
- Concrete Placement Observation and Testing
- Asphalt Placement Observation and Testing
- Mortar and Grout Placement Observation and Testing
- Observation and Testing of Steel Bolted Connections
- Weld Inspections
- Roof Installation Observation
- Testing and Inspection as per BOCA Codes

Geo-Environmental Engineering

- Hydrogeological Studies
- Solid and Hazardous Waste Landfill Design
- Groundwater and Contaminant Modeling
- Regulatory Compliance Reviews
- Landfill Construction Monitoring
- Remediation Oversight
- Tank Management

Project Experience

Project Experience

Professionals at GLSEC have applied their skills and educational training to complete a variety of projects throughout their careers. Their approach to problem solving and seeking innovative solutions have resulted in substantial savings to the clients. The professionals at GLSEC will be constantly working towards providing sound, feasible and economical solutions to their clients. Listed below are a few projects they have worked on and completed.

Suburban RDF, Waste Management of Ohio, Perry County, Ohio.

Contact: Mr. Mo Finy (614)787-2327

Performed By: Sanjeev Bandi

A 65-acre landfill expansion involving laying out the landfill limits based on setback requirements and maximization of landfill airspace. Special design considerations included design of high perimeter berms to maximize airspace and utilization of on-site soils, final cover design, sedimentation basin and surface water diversion berms, base grade and leachate sump design, and access and perimeter road design.

Model City Facility, Residuals Management Unit #1, Chemical Waste Management, Model City, New York.

Contact: Mr. John Hino (716)694-1303

Performed By: Sanjeev Bandi

Analyzed the proposed Residuals Management Unit #1 at Model City. The facility is located in a seismic impact zone. A number of failure scenarios were analyzed for seismic loading conditions. Waste configurations under filling conditions were established to provide stable landfill under seismic conditions.

Cottonwoods Recycling and Disposal Facility, Waste Management of Illinois, Marissa, Illinois.

Contact: Ms. Nancy Richardson, Rust E & I (414)458-8711

Performed By: Sanjeev Bandi

A solid waste disposal facility is proposed in an abandoned open pit coal mine near St. Louis. The site is located in a seismic impact zone due to its proximity to the New Madrid Fault. An extensive seismic stability analysis was conducted to determine the stability of proposed perimeter berm and final cover configurations under severe earthquake loading conditions. Displacement analyses were conducted using Newmark's approach for anticipated earthquake loads. Stable berm and final cover configurations were designed based on the results of the analyses.

Eagle Valley RDF, Waste Management of Michigan, Michigan.

Contact: Mr. Rich Paajanen (810)391-0990

Performed By: Sanjeev Bandi

Settlement evaluation for landfill base to determine if the leachate flow line slopes are

adequate. Designed a geogrid reinforced foundation for the landfill perimeter embankment adjacent to peat bog.

Countywide RDF, Waste Management of Ohio, Ohio.

Contact: Mr. Tim Vandersall

Performed By: Sanjeev Bandi

Work involved permit modifications to divide a cell into two subcells, developing temporary leachate collection system, phasing plan revision, re-evaluation of liner protection geotextile weight requirements. Performed feasibility of vertical and lateral expansions at the site based on seismic stability considerations. Developed a mine spoil investigation plan to assess the suitability of in situ mine spoils from strength and settlement aspects.

Kahle Landfill, Waste Management of Missouri, Missouri.

Contact: Mr. John Starke, Rust E&I, Minnesota (612)551-1001

Performed By: Sanjeev Bandi

Performed stability analysis of sedimentation basin. Analyses were performed as per Army Corps of Engineers guidelines and included conditions such as short-term, long-term, steady-state seepage and sudden drawdown.

Evergreen RDF, Waste Management of Ohio, Ohio

Contact: Mr. Tim Boudah (313)971-7080

Performed By: Sanjeev Bandi

Evaluation of landfill liner stability and settlement for vertical expansion. Evaluation of stability of final cover system synthetic interfaces.

Flaking Facility, General Mills, Chicago, Illinois

Contact: Mr. Rupen Shah, Gierczyk, Inc (708)333-6263

Performed By: Sudhakar Rao Doppalapudi

Performing geotechnical exploration, recommendation of foundation system. Monitoring caisson installation and verifying bearing capacity.

Community Hospital, Munster, Indiana.

Contact: Calumet Construction, Hammond, Indiana (219-844-9420)

Performed By: Sudhakar Rao Doppalapudi

Geotechnical exploration work, caisson installation monitoring.

Acme Steel Company, Riverdale, Illinois.

Contact: Mr. Al Dufault, Raytheon Engineers & Contractors, Downers Grove, Illinois
(708)829-3000

Performed By: Sudhakar Rao Doppalapudi

Pile driving and pile load test monitoring. Provided bearing capacity recommendations based

on geotechnical exploration. Developed criteria for termination of piles, verified pile capacities and stresses using a pile driving analyzer (PDA) on representative samples.

Little Calumet River Levee, Highland to Gary.

Contact: Eric Grundke, Kiewit Western Inc. (847)228-0818

Performed By: Sudhakar Rao Doppalapudi

Work involved performing clay fill testing for levee construction along the Little Calumet River. Several sand cone tests were performed to correlate with the nuclear density gage tests.

US 231 Street Improvement, Demotte, Indiana.

Contact: Mr. Joe Buedel, Lehrer, McGovern, Bovis, Inc. (317)237-2390

Performed By: Sudhakar Rao Doppalapudi

Work involved extensive earthwork testing of subgrade, subbase and asphalt testing of the asphalt pavement.

Ninth Avenue Superfund Landfill Site.

Contact: Jeff Herron, Dyer Construction Co. (219)865-2961

Performed By: Sudhakar Rao Doppalapudi

Work involved fill placement monitoring bentonite testing for the in situ hydraulic conductivity of trial cap configuration.

References

References

Our professionals have worked extensively with public and private sector clients. A number of references are provided below. Additional references will be provided upon request.

Waste Management of Ohio
Suburban RDF
Mr. Mo Finy
P.O. Box 17
Brownsville, OH 43721
(614)787-2327

Waste Management of Michigan
Eagle Valley RDF
Mr. Rich Paaanen
600 W. Silver Bell Road
Orion, MI 48359
(810)391-0990

Waste Management of Ohio
Countywide RDF
Mr. Tim Vandersall
3619 Gracemont Ave
East Sparta, OH 44626
(216)874-3855

Rust Environment & Infrastructure
Mr. John Starke
3033 Campus Drive, Suite 175
Minneapolis, MN 55441
(612)551-1001

Rust Environment & Infrastructure
Ms. Nancy Richardson
4738 North 40th Street
Sheboygan, WI 53083
(414)458-8711

Gierczyk, Inc.
Mr. Rupen Shah
16200 Clinton Ave
Harvey, IL 60426
(708)333-6263

Anderson, Schroud Group
Mr. Donald F. Schroud
216 West Jackson Blvd.
9th Floor
Chicago, IL 60606

Gaskil & Walton Construction Co.
Mr. Jeffrey R. Bowman
22480 Miller Road
South Chicago Hts., IL 60411
(708)758-1050

Kiewit Western Inc.
Mr. Eric Grundke
Elk Grove Village, IL 60007
(847)228-0818

RMT
Mr. Tim Boudah
1143 Highland Dr.
Ann Arbor, MI 48108
(313)971-7080

Rust Environment & Infrastructure
Mr. Jim Walker
17250 Newburgh Road, Suite 130
Livonia, MI 48152
(313)462-3036

Project Personnel

Project Personnel

Professionals at GLSEC have extensive practical experience and advanced academic background. They have used their skills to complete a variety of projects for public and private sector clients. Through continuing education and participation in professional activities they have constantly been updating their skills which benefit the projects they work on and the clients they serve.

Sudhakar Rao Doppalapudi, P.E.

President, Registered Civil and Principal Engineer

Rao has over eight years of experience in the geotechnical, geo-environmental and construction monitoring fields. He completed a number of projects and supervised several staff. Projects included public, private and industrial sectors such as municipalities, residential developers and steel mills.

Sanjeev Bandi, Ph.D., P.E.

Vice President, Registered Civil and Principal Engineer

Sanjeev has over eight years of experience in geotechnical engineering, geo-environmental engineering and regulatory compliance and design of solid waste landfills. Sanjeev is responsible for project planning, technical quality, schedule and client contact.

Krishna R. Reddy, Ph.D., P.E.

Asst. Professor, University of Illinois, Technical Adviser and Reviewer

Dr. Reddy is technical adviser and reviewer for GLSEC. He has a number of years of design experience in geotechnical, geo-environmental and landfill engineering. He is currently working on projects such field evaluation of landfill liner protection and field evaluation of leachate pipe performance.

Harish Dutt, Ph.D., P.E.

Manager, Geotechnical, Geo-environmental and Construction Monitoring

Harish has over six years of experience in geotechnical engineering, soil and material testing, ground water and contaminant modeling, stress analysis and numerical analysis. His experience included public and private sector companies. Harish is responsible for managing all field and laboratory planning functions, technical aspects of projects and report preparation.

Ashok K. Guntaka

Staff Engineer

Ashok has Bachelors and Masters degrees in civil engineering. As staff engineer he contributes to performing design calculations, laboratory testing analysis of soils and materials and field quality assurance and quality control.

Leslie K. Legge

CADD Operator/Staff Technician

Leslie has over eight years of experience in computer drafting of civil and environmental engineering plans. She also has experience in tool design, commercial art. Leslie is responsible for all drafting work at GLSEC.

Resumes

Sudhakar Rao Doppalapudi, P.E.
President, Principal Engineer

Education

M.S., 1988, Geotechnical Engineering, Illinois Institute of Technology, Chicago, IL

B.S., 1985, Civil Engineering, Jawaharlal Nehru Technological University, Hyderabad, India

Professional Registration

Professional Engineer	Indiana, 1995
	Illinois (pending)

Certifications

Concrete and Asphalt works - Illinois Department of Transportation

Areas of Expertise

Project Management
Geotechnical Engineering

Experience

Managerial experience included project management, coordination of staff work, manage laboratory and field engineering technicians, schedule drilling operations, proposal preparation and client contact.

Technical experience included preparation of subsurface soil exploration reports from initial conception to final stage, foundation analysis and design, review soil reports, technical meetings with structural engineers, architects and contractors, environmental site assessments and landfill feasibility studies.

Teaching experience included instructing undergraduate courses in construction cost estimation, design of reinforced concrete and irrigation structures.

Key Projects

Steel mills-scope of work included proposal preparation, field crew and laboratory testing supervision, soil analysis for type of foundation, pile capacity determination and report preparation.

Industrial Buildings - prepared geotechnical report for a new warehouse building for a major food processing chain. Scope of work included analysis of soil condition for shallow and caisson type of foundations, supervision of quality control during construction.

Commercial Buildings - prepared geotechnical report for a growing car wash chain. Designed deep foundation system with timber piles, pile caps, grade beams and structural floor slab.

Sudhakar Rao Doppalapudi, P.E. - President, Principal Engineer

Storage Tanks - prepared geotechnical report for a 3 million gallon water storage facility. Analyzed various types of bentonite to their suitability and the most appropriate mix design. Also performed Boutwell testing and analysis for RCRA landfill site.

Landfills - performed site assessments and hydro-geological studies. Scope of work included feasibility study and also experimental analysis of clay liners mixed with various types of bentonite to determine their suitability and the most appropriate mix design. Also performed Boutwell testing and analysis for a RCRA landfill site.

Environmental Assessments - performed Phase I and Phase II environmental site assessments for several industrial facilities. Work involved proposal preparation, client contact and site evaluation of the facilities to ascertain their compliance with various environmental regulations and to determine the nature and extent of the site specific contaminations. Other projects involved delineation of contaminated soil and plume of contaminated groundwater due to leaking underground storage tanks (LUST's). Monitored removal and remediation work of underground storage tanks (UST's).

Retaining Structures - analyzed temporary sheet pile system to facilitate construction of retaining wall for a major railroad company. Other works include design of counterfort system for support of a damaged basement wall for a residential building.

Computer Applications

PCSTABL5, gINT, word processing and spreadsheet programs.

Professional Memberships

American Society of Civil Engineers

Publications, Presentations, Awards

Graduated with high honors (second position in graduating class), JNTU, India, 1985.

Listed in "Who's is Who Among Students in American Universities and Colleges" in recognition of outstanding merit and accomplishment as a student of IIT, 1988.

Employment History

1996 - present	Great Lakes Soil & Environmental Consultants, Inc.
1987 - 1996	K & S Testing and Engineering, Highland, Indiana
1985 - 1986	Jawaharlal Nehru Technological University, India

Sanjeev Bandi, Ph.D., P.E.
Vice President, Principal Engineer

Education

Ph.D., 1992, Geotechnical Engineering, Illinois Institute of Technology, Chicago, Illinois

M.S., 1986, Geotechnical Engineering, University of Roorkee, Roorkee, India

B.S., 1983, Civil Engineering, Osmania University, Hyderabad, India

Professional Registrations

Professional Engineer	Michigan, 1996
	Ohio, 1995
	Wisconsin, 1993

Areas of Expertise

Landfill Siting and Design
Seismic Analysis and Design
Geotechnical Analysis and Design
Geosynthetic Analysis and Design
Computer Applications

Experience

Geotechnical experience involving a broad range of geotechnical analyses and designs, routine and advanced soil testing, subsurface exploration planning. Geosynthetic experience covering a large number of projects using geomembranes, geotextiles, pipes, geocomposites, geosynthetic clay liners and geogrids. Environmental experience in hazardous and solid waste landfill design, leachate system design, construction cost estimation, and closure plans. Teaching experience included instructing undergraduate surveying course, graduate and undergraduate soils lab.

Landfill Siting and Design

Woodland Meadows, Van Buren Vertical Expansion, Waste Management of Michigan, Canton, Michigan. Proposed vertical expansion at the facility required evaluation of uplift forces on the landfill base, foundation and liner stability, settlement of landfill base. Evaluated the stability of the final cover stability for soil and synthetic interfaces.

Eagle Valley RDF, Waste Management of Michigan, Michigan. Settlement evaluation for landfill base to determine if the leachate flow line slopes are adequate. Designed a geogrid reinforced foundation for the landfill perimeter embankment adjacent to peat bog.

Suburban RDF, Waste Management of Ohio, Perry County, Ohio. A 65-acre expansion proposal currently in progress involves laying out the landfill limits based on setback requirements and maximizing airspace. Special design considerations included design of high perimeter berms to maximize airspace and utilization of on-site soils, final cover design, sedimentation basin and

Sanjeev Bandi, Ph.D., P.E. - Vice President, Principal Engineer

surface water diversion berms, base grade and leachate sump design, and access and perimeter road design.

Adams Center Facility, Confidential Client, Ft. Wayne, Indiana. Designed a 32-acre hazardous waste landfill expansion at the existing facility. Design involved laying out landfill limits based on setback, access and clearance requirements, providing a double composite baseliner with geosynthetic clay liner and geomembranes, a composite final cover, access road, surface water diversion berms, sedimentation pond, perimeter drainage ditches, perimeter access road, provision for utilities and leachate header lines, access to existing groundwater monitoring wells, and a cut-off wall to seal pervious subsurface sand seam from the construction area.

Seismic Analysis and Design

Model City Facility, Residuals Management Unit #1, Confidential Client, Model City, New York. Analyzed the proposed Residuals Management Unit #1 at Model City. The facility is located in a seismic impact zone. A number of failure scenarios were analyzed for seismic loading conditions. Waste configurations under filling conditions were established to provide stable landfill under seismic conditions.

Cottonwoods Recycling and Disposal Facility, Waste Management of Illinois, Marissa, Illinois. A solid waste disposal facility is proposed in an abandoned open pit coal mine near St. Louis. The site is located in a seismic impact zone due to its proximity to the New Madrid Fault. An extensive seismic stability analysis was conducted to determine the stability of proposed perimeter berm and final cover configurations under severe earthquake loading conditions. Displacement analyses were conducted using Newmark's approach for anticipated earthquake loads. Stable berm and final cover configurations were designed based on the results of the analyses.

Douglas County Landfill, Waste Management of Nebraska. The landfill is located in a seismic impact zone. Federal Subtitle D regulations required the demonstration that the landfill will be stable under expected earthquake acceleration. A seismic stability analysis was conducted for final build out conditions which indicated deformation of the landfill components under design earthquake loads. Deformation analyses were conducted to assess the deformation. The estimated deformations indicated that the landfill should perform satisfactorily under the design earthquake.

Geotechnical Analysis and Design

Completed over 25 projects which involved a broad range of geotechnical analyses and designs. The work consisted of defining the field exploration program to obtain geotechnical design parameters, laboratory testing of remolded and undisturbed samples to obtain strength parameters, and index testing. Analyses included bearing capacity evaluation, settlement calculation, uplift evaluation, liquefaction potential, stability evaluation of waste mass, base liner and final cover system, and heave of foundation soils. Design of landfills included analyzing the results and proposing configuration, constructing methods and materials to satisfy the regulatory requirements with regard to factors of safety.

Sanjeev Bandi, Ph.D., P.E. - Vice President, Principal Engineer

Geosynthetic Analysis and Design

Worked on over 30 projects involving analysis and design of geosynthetics. Projects involved designing geosynthetics for interface shear strength, puncture, elongation, tensile strength, containments foundation support, and containment. Provided specifications to conduct laboratory tests on geosynthetic and soil interfaces and determine interface strength properties. The geosynthetic materials were designed to resist vehicular loads, static overburden loads, earthquake forces, and down drag forces. Designed HDPE and PVC pipes for leachate collection and conveyance in landfills. The design considerations included several factors such as static long-term overburden loads, equipment loads, embedment conditions, temperature, holes in pipe wall, etc.

Computer Applications

PCSTABL5, UTEXAS3, SEDCAD, HELP, KYPIPE, SHAKE, SAP, TNMN, NTPLASRN, HAESTAD METHODS, word processing and spreadsheet programs. Developed spreadsheet program to compute permanent deformations in slopes during earthquake motions based on Newmark's double integration method.

Training

Geosynthetic Design-Geosynthetic Research Institute
Technical Writing-Rust E&I internal
Project Management-Rust E&I internal

Professional Memberships

American Society of Civil Engineers
North American Geosynthetics Society
Tau Beta Pi

Presentations, Publications, Awards

Publications

Ruetten, M. G., Bandi, S. and Reddy, K. R. (1995). "Rational Design Approach For Landfill Liner Protective Soil Cover," Proceedings of the Eighteenth International Madison Waste Conference, University of Wisconsin-Madison, Sept. 20-21, 1995.

Reddy, K. R., Kolloju, P., Ruetten, M. G., and Bandi, S. (1995). "Characterization of Protective Cover Soils For Landfill Liners," Proceedings of the Third Great Lakes Geotechnical/Geoenviromental Conference, Cleveland, May 1995.

Bandi, S. and Duffy, D.P. (1995). "Engineering Design Options for Reinforced Landfill Foundations in Unstable Subbase Conditions - A Case History," Proceedings of the Waste Tech '95, New Orleans, Louisiana, January 23-24, 1995.

Sanjeev Bandi, Ph.D., P.E. - Vice President, Principal Engineer

Duffy, D.P. and Bandi, S. (1994). "The Effects of Potential Seismic Loadings on Landfill Structural Integrity and Resultant Design Options - A Case History," Proceedings of the Seventeenth International Madison Waste Conference, University of Wisconsin-Madison, September 21-22, 1994

Bandi, S. and Ruetten, M.G. (1993). "A Case Study of Landfill Stability Analysis," Proceedings of the Sixteenth International Madison Waste Conference, University of Wisconsin-Madison, Sept. 22-23, 1993

Bandi, S. (1992). "Effect of Inclusions on Liquefaction of Sands," Ph.D. dissertation, Illinois Institute of Technology, Chicago, Illinois, May 1992.

Bandi, S. (1986). "Bearing Capacity of Eccentrically Loaded Footings on Cohesionless Slopes," M.S. Thesis, University of Roorkee, Roorkee, India.

Bandi, S. (1985). "Effect of Saturation on Engineering Properties of Rocks," M.S. seminar report, University of Roorkee, Roorkee, India.

Presentations

"Engineering Design Options for Reinforced Landfill Foundations in Unstable Subbase Conditions - A Case History," Waste Tech '95, New Orleans, Louisiana, January 23-24, 1995.

"A Case Study of Landfill Stability Analysis," Sixteenth International Madison Waste Conference, University of Wisconsin-Madison, Sept. 22-23, 1993.

"Seismic Design Considerations For Landfills," Rust E&I internal seminar, 1993.

"Geotechnical Design Considerations For Marissa Landfill," Rust E&I internal seminar, 1994.

Employment History

1996 - present	Great Lakes Soil & Environmental Consultants Inc.
1992 - 1996	Rust Environment & Infrastructure Inc.
1987 - 1992	Illinois Institute of Technology
1988 - 1988	K & S Testing and Engineering
1985 - 1987	Indian Oil Corporation, Ltd., India

Resume of
KRISHNA R. REDDY, Ph.D., P.E.
Assistant Professor of Civil Engineering

University of Illinois at Chicago
Department of Civil and Materials Engineering
842 West Taylor Street
Chicago, Illinois 60607-7023

Tel: (312) 996-4755 *Office*
(708) 369-0238 *Home*
Fax: (312) 996-2426
E-mail: KReddy@uic.edu

EDUCATION:

Ph.D in Civil Engineering, Illinois Institute of Technology, Chicago, May 1990
M.S. in Civil Engineering, University of Roorkee, Roorkee, India, June 1985
B.S. in Civil Engineering, Osmania University, Hyderabad, India, January 1983

AWARDS & HONORS:

- Best Paper Award, Technology Development Conference, Dept. of Energy, Las Cruces, New Mexico, 1995
- Clinton E. Stryker Distinguished Service Award, Illinois Institute of Technology, 1989.
- Indian Society of Earthquake Technology Best Paper Award in the area of Earthquake Engineering for the period 1985-1988.
- Gold Medal for first position in M.S., University of Roorkee, Roorkee, India, 1985.
- Gold Medal for first position in B.S., Osmania University, Hyderabad, India, 1983.
- Silver Medal for first position in college, Board of Intermediate Education, Hyderabad, India, 1978.
- Listed in Who's Who Among Students in American Universities & Colleges in recognition of outstanding merit and accomplishment as a student of IIT, 1988 and 1989.

PROFESSIONAL REGISTRATION:

Registered Professional Engineer, State of Illinois

PROFESSIONAL EXPERIENCE:

Assistant Professor (August 1993-Present), Department of Civil and Materials Engineering, University of Illinois at Chicago. Teach geotechnical and environmental engineering courses, and conduct research in the areas of geotechnical and geo-environmental engineering, earthquake engineering, and contaminant hydrology.

Project Manager/Project Engineer (May 1990- August 1993), Patrick Engineering Inc., Glen Ellyn, Illinois. Completed numerous geotechnical, geo-environmental and hydrogeological investigations. Performed: field exploration and testing, laboratory testing of soils and rocks, design of foundations, retaining structures and landfills, remedial investigations, slug and aquifer testing, groundwater flow and contaminant transport modeling, and design of groundwater monitoring systems.

Civil Engineer (May 1989-August 1989: Summer Intern), Harza Environmental Services, Inc., Chicago. Assisted in design of drainage systems for the Elgin-O'Hare highway, analysis of water distribution system at the Great Lakes Naval Base, and design of storm sewer systems for the city of Evanston.

Research Assistant/Teaching Assistant (August 1985-May 1990), Civil Engineering Department, Illinois Institute of Technology, Chicago. Performed resonant column, cyclic triaxial, static triaxial, Brazilian and unconfined compression tests on uncemented and cemented sands; quantified beneficial effects of cementation of sands; developed a true triaxial testing apparatus for static and dynamic testing; performed tests on uncemented and cemented sands under different stress paths; investigated constitutive modeling of cemented sands under static

and dynamic loads; proposed a method to predict liquefaction under multi-directional cyclic loadings. Taught or assisted in teaching and grading for several civil engineering courses and laboratory classes.

Research Associate (February 1985-August 1985), Department of Civil Engineering, University of Roorkee, India. Developed a mathematical model and a computer code to investigate dynamic response of rigid retaining walls; designed and developed deflecting diaphragm type pressure cell to measure static and dynamic pressures.

CURRENT TEACHING AND RESEARCH INTERESTS:

Soil and groundwater remediation
Waste containment systems
Groundwater flow and contaminant transport modeling
Scrap and recycled material applications
Geotechnical earthquake engineering
Soil-structure interaction
Foundation engineering
Geotechnical instrumentation and testing

PUBLICATIONS:

Refereed Journal Papers:

- "Interface Shear Behavior of Landfill Composite Liner Systems: A Finite Element Analysis," Submitted to *Geosynthetics International Journal*; With S. Kosgi and E.S. Motan.
- "Feasibility of Electrokinetic Remediation of Metal Contaminated Glacial Till," Submitted to *Geotechnical and Geological Engineering Journal*; With A.B. Shirani.
- "New Analysis Procedure for Slug Tests in Highly Permeable Confined Aquifers," Submitted to *Ground Water Journal*; With J. Zhou and J. Davis.
- "Effects of Soil Composition on Removal of Chromium by Electrokinetics," Submitted to *Journal of Hazardous Materials*; With U.S. Parupudi, S.S.N. Devulapalli, and C.Y. Xu.
- "Use of Shredded Tires as a Lightweight Backfill Material for Retaining Structures," Accepted for publication in *Waste Management & Research Journal*; With V. Cecich, L. Gonzales, A. Hoisaeter, and J. Williams.
- "Evaluation of Soil Washing Process to Remove Mixed Contaminants from a Sandy Loam," *Journal of Hazardous Materials*, Vol.45, 1996, pp.45-57; With R. Semer.
- "A Review of In-Situ Air Sparging for the Remediation of VOC-Contaminated Saturated Soils and Groundwater," *Hazardous Waste & Hazardous Materials*, Vol.12, No.2, 1995, pp.97-118; With S. Kosgi and J. Zhou.
- "Effects of Cementation on Stress-Strain and Strength Characteristics of Sands," *Soils and Foundations Journal*, JSSMFE, Vol. 33, No.4, December, 1993, pp.123-136; With S.K. Saxena.
- "Liquefaction Resistance of Cemented Sand under Multidirectional Cyclic Loading," *Canadian Geotechnical Journal*, Vol. 29, December, 1992, pp.989-993; With S.K. Saxena.
- "Constitutive Modeling of Cemented Sand," *Mechanics of Materials Journal*, Vol.14, December, 1992, pp.155-178; With S.K. Saxena.

- "Development of a True Triaxial Testing Apparatus," *Geotechnical Testing Journal*, GTJODJ, No.2, Vol.15, June, 1992, pp.89-105; With S.K. Saxena and J. Budiman.
- "Dynamic Moduli and Damping Ratios for Monterey No.0 Sand by Resonant Column Tests," *Soils and Foundations Journal*, JSSMFE, No.2, Vol.29, June, 1989, pp.37-51; With S.K. Saxena.
- "Liquefaction Resistance of Artificially Cemented Sand," *Journal of Geotechnical Engineering*, ASCE, No.GT12, Vol.114, December, 1988, pp.1395-1413; With S.K. Saxena and A. Avramidis.
- "Dynamic Moduli and Damping Ratios for Cemented Sands at Low Strains," *Canadian Geotechnical Journal*, No.2, Vol.25, May, 1988, pp.353-368; With S.K. Saxena and A. Avramidis.
- "Static Behavior of Artificially Cemented Sand," *Indian Geotechnical Journal*, No.2, Vol.18, April, 1988, pp.111-141; With S.K. Saxena and A. Avramidis.
- "Low Strain Dynamic Properties of Artificially Cemented Sand," Discussion, *Journal of Geotechnical Engineering*, ASCE, No.GT8, Vol.114, August, 1988, pp.950-954; With S.K. Saxena.
- "Displacement Dependent Earth Pressures," *Indian Geotechnical Journal*, No.2, Vol.17, April, 1987, pp.121-141; With S. Saran and M. Viladkar.
- "Prediction of Displacements of Retaining Walls Under Dynamic Conditions," *Bull. Ind. Soc. Earthq. Tech.*, No.3, Vol.22, September, 1985, pp.101-115; With S. Saran and M. Viladkar.

Conference Papers (accepted based on full paper review):

- "A Multi-phase and Multi-component Transport Model for VOC-Contaminated Site Remediation Evaluations," In preparation for the 14th *International Conference on Soil Mechanics and Foundation Engineering*; With J. Zhou.
- "Electrokinetic Remediation of Soils Contaminated With Electroplating Wastes," In Preparation for the 58th Annual *American Power Conference*, Chicago, April 1996; With U.S. Parupudi and S. Devulapalli.
- "Finite Element Modeling of In-Situ Air Sparging for Groundwater Remediation," Submitted for the Second *International Congress on Environmental Geotechnics*, Osaka, Japan, November 1996; With J. Zhou.
- "Effects of Nonlinear Adsorption on Contaminant Transport Through Landfill Clay 1-3," Subm. #1 for the Second *International Congress on Environmental Geotechnics*, Osaka, Japan, November 1996; With S.S.N. Devulapalli.
- "Electrokinetic Removal of Chromium from Glacial Clays," Proceedings of the Eighth *International IGT Symposium on Gas, Oil, and Environmental Biotechnology*, Colorado Springs, Colorado, December 1995; With U.S. Parupudi.
- "Modeling of Volumetric Response of Cemented Sand Under Cyclic Loading," Proceedings of the Third *International Conference on Recent Advances in Geotechnical Earthquake Engineering and Soil Dynamics*, St. Louis, April 1995, pp.1079-1082.
- "Computer Modeling to Define the Extent of Groundwater Contamination at a Coal Refuse Disposal Facility," Proceedings of the First *International Congress on Environmental Geotechnics*, Edmonton, Canada, July, 1994, pp.539-544; With J.C. Schuh.

Conference Papers (accepted based on abstract review):

- "Rational Design Approach for Landfill Liner Protective Soil Cover," Proceedings of the Eighteenth International Madison Waste Conference, Madison, Wisconsin, September 1995, pp.302-308; With M. Ruetten and S. Bandi.
- "Remediation of a Sandy Loam Contaminated With Mixed Pollutants," Proceedings of the 1995 ASCE-CSCE Environmental Engineering Conference on Innovative Technologies for Site Remediation and Hazardous Waste Management, Pittsburgh, July 1995; With R. Semer.
- "Characterization of Protective Cover Soils for Landfill Geomembrane Liners," Proceedings of the Third Great Lakes Geotechnical/Geoenvironmental Conference, Cleveland, May 1995, pp.117-143; With P. Kolloju, M. Ruetten, and S. Bandi.
- "Roadway Subgrade Improvement Using Geotextiles- A Case Study," Proceedings of the Third Great Lakes Geotechnical/Geoenvironmental Conference, Cleveland, May 1995, pp.183-195; With C. Oliver.
- "New Model to Simulate Air Sparging for Groundwater Remediation," Proceedings of the 5th Annual WERC Technology Development Conference, Las Cruces, New Mexico, April 1995, pp.299-308; With J. Zhou and S. Kosgi.
- "Behavior of Geocomposite Landfill Liner Systems Under Incremental Loading Conditions," Proceedings of the Second Annual Great Lakes Geotechnical/Geoenvironmental Conference, Purdue University, West Lafayette, Indiana, May 1994, pp.167-185; With E.S. Motan.
- "Groundwater Contamination Due to Seepage from Surface Impoundments," Proceedings of the 4th Annual WERC Technology Development Conference, Las Cruces, New Mexico, April 1994, pp.319-329; With J.C. Schuh.
- "Behavior of Cemented Sands Under Dynamic Loading," Proceedings of the Eighth Japan Earthquake Engineering Symposium, Tokyo, Japan, December, 1990, pp.757-764; With S.K.Saxena.
- "Dynamic Behavior of Artificially Cemented Sands," Proceedings of the Ninth World Conference on Earthquake Engineering, Tokyo-Kyoto, Japan, Vol.III, August, 1988, pp.41-46; With S.K. Saxena and A. Avramidis.
- "Verification of a Constitutive Model for Granular Materials," Proceedings of International Workshop on Constitutive Equations for Granular Non-cohesive Soils, Cleveland, Saada & Bianchini(eds), Balkema Publishers, July, 1987, pp.629-645; With S.K. Saxena and A. Sengupta.
- "Behavior of Cement Stabilized Sands," Proceedings of Indian Geotechnical Conference, Bangalore, India, Vol.1, December, 1987, pp.341-344; With S.K. Saxena.
- "Dynamic Properties of Sands at Low Strain Amplitudes," Proceedings of Pacific Conference On Earthquake Engineering, Wairakei, New Zealand, Vol.3, August, 1987, pp.61-72; With S.K.Saxena.
- "Behavior of Soils, Foundations and Slopes During Earthquakes," Proceedings of International Symposium on Creation of Awareness about Earthquake Hazards and Mitigation of Seismic Risks, Roorkee, India, November, 1984, pp.19-24; With S. Saran.

General Articles:

- "Groundwater Management Engineering," ASCE Illinois Section Newsletter, Vol.34, No.6, April, 1993, pp.1-2; With J.C. Schuh.

Research Reports:

- "Seismic Performance Evaluation of Landfills in Illinois," Report Number UIC-GGEL-95-03, Department of Civil and Materials Engineering, University of Illinois at Chicago, April 1995; With C. Oliver.
- "Deformation Characteristics of Landfill Composite Liners Under Incremental Refuse Loading Conditions," Report Number UIC-GGEL-95-04, Department of Civil and Materials Engineering, University of Illinois at Chicago, April 1995; With S. Kosgi.
- "Electrokinetic Remediation of Metal-Contaminated Glacial Till," Report Number UIC-GGEL-95-05, Department of Civil and Materials Engineering, University of Illinois at Chicago, April 1995; With Shirani.
- "Evaluation of Protective Soil Cover for Landfill Liners- Progress Report," Report Number UIC-GGEL-9502, Department of Civil and Materials Engineering, University of Illinois at Chicago, January 1995; With P. Kolloju, M. Ruetten and S. Bandi.
- "Slug Testing in Highly Permeable Confined Aquifers," Report Number UIC-GGEL-9501, Department of Civil and Materials Engineering, University of Illinois at Chicago, January 1995; With J. Zuo and J. Davis.
- "Behavior of Cemented Sands Under Three-Dimensional Loadings." Report Number IIT-CE-9001, Department of Civil Engineering, Illinois Institute of Technology, Chicago, Illinois, May, 1990; With S.K. Saxena.
- "Mechanical Behavior of Cemented Sands," Report to the National Science Foundation (NSF/ENG-87009), Report No. IIT-CE-8701, Department of Civil Engineering, Illinois Institute of Technology, Chicago, Illinois, June, 1987; With S.K.Saxena.
- "Prediction of Displacements of Retaining Walls Under Static and Dynamic Conditions," Department of Civil Engineering, University of Roorkee, Roorkee, India, April, 1985.
- "Behavior of Piles Under Dynamic Loads," Department of Civil Engineering, University of Roorkee, India, October, 1984.

Books and Special Publications:

- Laboratory Testing of Soils for Engineering Purposes, Laboratory Manual, in preparation.
- In-Situ Remediation of Contaminated Sites, Editor, Proceedings of the Fourth Great Lakes Geotechnical and Geoenvironmental Conference, in preparation.
- Geoenvironmental Engineering for Waste Containment and Remediation, in preparation; with H.D. Sharma.

PRESENTATIONS:

- "Design of Waste Containment Systems- Two Case Studies," University of Illinois at Chicago, May 27, 1993 (Invited).
- "Groundwater Contamination Caused Due to Seepage from Surface Impoundments," Fourth Annual Technology Development Conference, New Mexico State University, Las Cruces, April 15, 1994.

- "Behavior of Geocomposite Landfill Liner Systems Under Incremental Loading Conditions," Second Annual Great Lakes Geotechnical/Geoenvironmental Conference, Purdue University, West Lafayette, Indiana, May 20, 1994.
- "Computer Modeling to Define the Extent of Groundwater Contamination at a Coal Refuse Disposal Facility," First International Congress on Environmental Geotechnics, Edmonton, Canada, July 11, 1994.
- "Air Sparging for Groundwater Remediation," Illinois Groundwater Association, March 22, 1995.
- "New Analysis Procedure to Analyze Slug Tests in Highly Permeable Confined Aquifers," Illinois Groundwater Association, March 22, 1995.
- "Deformation Characteristics of Landfill Composite Liners Under Incremental Refuse Loading Conditions," OSWR Solid Waste Research Symposium, March 28, 1995.
- "Contaminant Transport Through Landfill Composite Liners," OSWR Solid Waste Research Symposium, March 28, 1995.
- "Development of Rational Design Method for Landfill Liner Protective Soil Cover," OSWR Solid Waste Research Symposium, March 28, 1995.
- "Seismic Performance Evaluation of Solid Waste Landfills in Illinois," OSWR Solid Waste Research Symposium, March 28, 1995.
- "New Applications of Shredded Scrap Tires and Glass Cullet in Civil Engineering," OSWR Solid Waste Research Symposium, March 29, 1995.
- "Characterization of Protective Cover Soils for Landfill Geomembrane Liners," Third Great Lakes Geotechnical/Geoenvironmental Conference, Cleveland, May 19, 1995.
- "Soil Compositional Influence on Electrokinetic Remediation of Chromium-Contaminated Sites," Institute of Gas Technology, Des Plaines, Illinois, August 31, 1995 (invited).
- "Rational Design Approach for Landfill Liner Protective Soil Cover," Eighteenth International Madison Waste Conference, Madison, Wisconsin, September 21, 1995.

RESEARCH SUPERVISION:

Ph.D. Theses:

- Zhou, Jinnan, "Mechanics and Modeling of Contaminant Transport During In-Situ Air Sparging for Remediation of VOC-Contaminated Soils and Groundwater," (in progress).

M.S. Theses:

- Chad, Oliver, "Seismic Performance Evaluation of Solid Waste Landfills in Illinois," March, 1995.
- Kosgi, Sinduja, "Deformation Characteristics of Landfill Composite Liners Under Incremental Refuse Loading Conditions," March, 1995.
- Shirani, Akhgar, "Electrokinetic Remediation of Metal-Contaminated Glacial Till," March, 1995.
- Semer, Robin, "Experimental Investigation of Air Sparging Process for Groundwater Remediation," in progress.

- Parupudi, Usha, "Gechemical Processes Affecting Removal of Chromium from Fine-Grained Soils by Electrokinetics," in progress.

Undergraduate Senior Design Projects:

- Cecich, V., Gonzales, L., Hoisaeter, A., and Williams, J., "Use of Shredded Tires as a Lightweight Backfill Material for Retaining Structures," April, 1994. Won the First Place Award at the Engineering Expo 1994 under Environmental Concern Category.
- Custodio, M.A.C., "Remediation of Contaminated Soils by Soil Washing Process," April, 1994. Won the Second Place Award at the Engineering Expo 1994 under Environmental Concern Category.
- Gasiorek, C., Gould, S., Marchese, A., and Skolmoski, L., "Use of Shredded Tires and Glass Cullet as Trench Backfill," May 1995. Won the Second Place Award at the Engineering Expo 1995 under Environmental Concern Category.
- Semer, R., "Experimental Investigation of Air Sparging for Groundwater Remediation," May 1995.

TEACHING:

Regular Courses:

CEMM200- Statics and Dynamics
 CEMM315- Soil Mechanics and Foundation Engineering
 CEMM415- Geotechnical Engineering II (old course)
 CEMM428- Groundwater Hydrology and Contaminant Transport Modeling (Guest Lectures)
 CEMM405- Foundation Analysis and Design*
 CEMM425- Environmental Remediation Engineering*
 CEMM516- Design of Landfills and Impoundments*
 CEMM415- Environmental Geotechnology*

* *newly developed courses.*

In addition to the above courses, Independent Studies Courses, Senior Design Projects and Honor Student Projects have been given on various topics.

Special Courses and Teaching Activities:

HON202- Environmental Engineering Laboratory

Faculty Advisor for the Student Environmental Design Contest consecutively for three years. This contest is organized by Waste-management Education and Research Consortium, Las Cruces, New Mexico under the sponsorship of DOE to seek innovative solutions to the actual contamination problems.

Faculty Mentor for a group of high school students during Summer 1995 as a part of Outreach Program for the underrepresented students in the Chicagoland area.

UNIVERSITY SERVICE:

Director, Geotechnical and Geoenvironmental Engineering Laboratory (August 1993-Present)
 Steering Committee Member, UIC Environmental Engineering and Health Center (August 1994-Present)
 Fellow, Honors College (January 1994-Present)
 Member, Department Graduate Committee (August 1994-Present)
 Member, Department Advisory Committee (August 1995-Present)
 Member, Civil Engineering Curriculum Committee (August 1995-Present)

Member, Faculty Search Committee (August 1995-)
Department Faculty Secretary (August 1994-Present)

PROFESSIONAL AFFILIATION:

American Society of Civil Engineers
American Society for Testing and Materials
International Society of Soil Mechanics and Foundation Engineering
Association of Ground Water Scientists and Engineers
Illinois Groundwater Association
Illinois Association of Environmental Professionals
Transportation Research Board

PROFESSIONAL ACTIVITIES:

Conference Chairman, Fourth Annual Great Lakes Geotechnical and Geoenvironmental Conference (1995-96)
Vice President (1995-96) and Member, GLGGC Steering Committee
Paper review for ASTM, ASCE, TRB Papers (1993-Present).
Member, Committee on Physicochemical Phenomenon in Soils, Transportation Research Board (1994-Present).
Member, President's Student Leadership Committee, Illinois Institute of Technology, 1989-90.
Secretary, American Society of Civil Engineers Student Chapter, Illinois Institute of Technology, 1988.

CONSULTING ACTIVITIES:

Served as a technical consultant for numerous projects involving site remediation, site characterization, landfill design and permitting, groundwater impact assessments, foundation engineering, geotechnical instrumentation, and soil testing

Revised: 7/18/95

LICENSE FEE REQUIREMENTS

LICENSE FEE AND DEBT COLLECTION BRANCH
DIVISION OF ACCOUNTING AND FINANCE
OFFICE OF THE CONTROLLER
U.S. NUCLEAR REGULATORY COMMISSION
WASHINGTON, DC 20555-0001

GREAT LAKES SOIL & ENVIRONMENTAL
CONSULTANTS, INC.
ATT: SUDHAKAR R. DOPPALAPUDI
1743 NOVO DRIVE
SCHERERVILLE, INDIANA 46375

TYPE OF ACTION

NEW LICENSE
RENEWAL OF LICENSE
AMENDMENT TO LICENSE

REQUESTED DATE _____

6-8-96

LICENSE NUMBER

CONTROL NUMBER

301422

1. APPLICATION FEE DUE

Your request for a licensing action is subject to the fee(s) in the category(ies) noted below in accordance with Section 170.31 of the enclosed Federal Register notice. Payment of the fee is required prior to the issuance of the license, renewal, or amendment.

[illegible]

Your request was received without the prescribed application fee.

We received your Check
No. 1056 in the amount of
\$ 400.00 Payment of the additional fee noted
above is required.

Your request will increase the scope of your license program. Therefore, your request is subject to the application fee(s) noted above. Refer to Section 170.31 and Footnote 1(d)(2).

Your license expired prior to the receipt of your application for renewal. Therefore, your request is subject to the application fee(s) noted above. Refer to Section 170.31 and Footnote 1(a).

MAKE PAYMENT OF THE FEE(S) TO THE U.S. NUCLEAR REGULATORY COMMISSION AND MAIL THE PAYMENT TO THE ADDRESS LISTED AT THE TOP OF THIS FORM. IF WE DO NOT RECEIVE A REPLY FROM YOU WITHIN 30 CALENDAR DAYS FROM THE DATE LISTED BELOW, WE SHALL ASSUME THAT YOU DO NOT WISH TO PURSUE YOUR APPLICATION AND WILL VOID THIS ACTION.

II. FEE NOT REQUIRED

Enclosed is Check No. _____ which accompanied your request. The fee is not required because _____

We received your Check No. _____ in payment of the fee.

The Licensing staff has informed us that your request is to be considered as a continuation of your request dated

Control No.

Your request was combined, prior to review, with your request, Control No.

III. CHECK RETURNED

Enclosed is Check No. _____ which was returned to us
by the bank for: _____

INSUFFICIENT FUNDS

ACCOUNT CLOSED

OTHER

MAIL THE REPLACEMENT CHECK TO THE ADDRESS LISTED AT THE TOP OF THIS FORM AND REFERENCE THE ABOVE CONTROL NUMBER.

IV. LICENSE ISSUED WITHOUT THE REQUIRED FEE

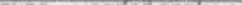
License No. Amendment No. Issued on

was issued without the required fee being collected. The fee required is noted in Section I of this form.

The scope of your licensed program was increased. Therefore, your request is subject to the application fee(s) noted in Section 1 of this form. Refer to Section 170.31 and Footnote 1(d)(2).

Because of the urgency of your request, the license was issued without remittance of the prescribed fee noted in Section 1 of this form.

Distribution. *OC/DAF/R* DATE
 Pending Fee File *OC/DAF/SF(LF-3 2.7)*
 LFARB R/F (2) Region *3* *Chu*

SIGNATURE - LICENSE FEE ANALYST LFDCB
 LFDCB
 X SHIRLEY GRUTCHFIELD 6/21/96

OCT 21 1996

Doppalapudi S. Rao, Principal
Great Lakes Soil & Environmental
Consultants, Inc.
1743 Novo Drive
Schererville, IN 46375

Dear Mr. Rao:

This refers to: (1) your June 8, 1996 application for a new materials license, (2) our facsimile dated July 9, 1996, and (3) our telephone conversation on October 17, 1996. During the telephone conversation, you indicated that you had not yet received a materials license from the State of Illinois; therefore, you were not ready to respond to the questions in our July 9, 1996 facsimile.

As we discussed during the telephone conversation, we have voided your request for a new license. This action is without prejudice to resubmission. If you resubmit your request, in order to avoid an additional fee, please state that the resubmission is additional information to Control Number 301422.

If you have any questions or require clarification on any of the information stated above, you may contact us at (630) 829-9887.

Sincerely,

Original Signed By
Michael F. Weber
Nuclear Materials Licensing Branch

License No. 13-26735-01
Docket No. 030-34173

DOCUMENT NAME: G:\03034173.VO6

To receive a copy of this document, indicate in the box: "C" = Copy without enclosures "E" = Copy with enclosures "N" = No copy

OFFICE	DNMS/RIII	C							
NAME	MWEBER:jaw								
DATE	10/21/96								

OFFICIAL RECORD COPY

301422



Illinois Department of Transportation

Bureau of Materials and Physical Research
126 East Ash Street / Springfield, Illinois / 62704-4766

March 1, 1995

Mr. Sudhakar Rao
K & S Testing & Engineering
9715 Kennedy Avenue
Highland, Indiana 46322

Dear Mr. Rao:

This is to acknowledge your attendance at our presentation for radiation safety training, "S-34 Radiation Safety and Density by the Nuclear Method" course, which was presented at the Illinois Department of Transportation, District 1 Headquarters on March 24, 1988, and your score of 100 percent on the written exam.

This letter, along with documentation of your experience since attending the above named class, may suffice as evidence to request authorization from the Nuclear Regulatory Commission to operate a portable nuclear moisture-density gauge.

If you have any questions, please contact Mr. Dennis Rowe of this office at 217-782-7206.

Very truly yours,

J. G. Gehier, P.E.
Engineer of Materials
and Physical Research

A handwritten signature in cursive script that reads "Richard W. Hahn".

By:
Richard W. Hahn, P.E.
Engineer of Tests

DBR:blc

UNITED STATES
NUCLEAR REGULATORY COMMISSION
REGION III
801 WARRENVILLE ROAD
LISLE, IL 60532-4351
708-829-9887 (phone)
708-515-1259 (fax)

CONVERSATION RECORD

TIME

10:00 am

DATE

7/9/96

☐ VISIT

☐ CONFERENCE

☒ TELEPHONE

☒ INCOMING

☒ OUTGOING

NAME OF PERSON(S) CONTACTED

ORGANIZATION (OFFICE, DEPT. ETC.)

TELEPHONE NO.

D. S. Rao

Great Lakes Soil & Environmental Consultants, Inc.

219-865-9023

SUBJECT

New license request - deficiencies in 6/28/96 letter

SUMMARY

- 1) Identify the model number of each gauging device in which the sealed sources will be used (e.g., Troxler Model 3400 Series moisture/density gauges). (Refer to DG-0008 page 10, Item 5.3)
- 2) In your June 28, 1996 letter, you indicate that at the present time, the gauges are intended to be stored in a residential building. Please confirm that the use of licensed material does not conflict with local codes or zoning laws, and explain how radiation levels in unrestricted areas will be controlled and monitored to comply with 10 CFR 20.1301. (Refer to DG-0008 pages 16-18, Item 9)
- 3) Provide the name of the supplier of the film badges you will use or a commitment to use any supplier accredited by the National Voluntary Laboratory Accreditation Program (NVLAP), as required by 10 CFR 20.1501. (Refer to DG-0008 page 20, Item 10.1(2)(a))
- 4) In your June 28, 1996 letter, you indicate: "We would like to set up an agreement with the gauge manufacturer to provide us with a survey meter in the case of any emergency at any of the job sites." Please submit a firm commitment to either: (1) have at least one appropriate, calibrated survey meter at each jobsite for timely evaluation of source integrity following an incident, or (2) explain how you will have access to an appropriate survey meter for timely evaluation of source integrity following an incident at any jobsite. If you choose the first option, you should state, for example: "At each jobsite we will have at least one survey instrument capable of measuring between 1 microsievert per hour (0.1 millirem per hour) and 1 millisievert per hour (100 millirems per hour). This instrument will be used to perform surveys after an incident. Each survey instrument will be calibrated by the manufacturer at intervals not to exceed 6 months. Before using a survey instrument, we will check the instrument with a dedicated check source that was supplied with the instrument and, if the instrument does not respond properly, we will not use the instrument until it is repaired and operable or until we obtain an operable instrument." (Refer to DG-0008 pages 20-21, Item 10.2)

In your response, please refer to Control Number 301422.

ACTION REQUIRED

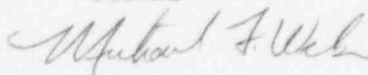
Wait for response.

NAME OF PERSON DOCUMENTING CONVERSATION

SIGNATURE

DATE

Michael F. Weber

|  |

7/9/96

Great Lakes
Soil & Environmental
Consultants, Inc.

Offices in Indiana & Michigan

1743 Novo Dr
Schererville, IN 46375
Ph: 219-865-9023
Fax: 219-865-8919

Engineering, soil and material testing

June 28th, 1996

U. S. Nuclear Regulatory Comm.
Dept.: DNMS
801 Warrenville Rd 2nd Floor
Lisle, IL 60532
Attn: Mr. Michael F. Weber
Nuclear Materials Licensing Branch

RE: Application for Material License

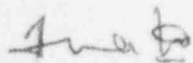
CONTROL NO 301422

Dear Mr. Weber:

We have reviewed your letter dated June 20, 1996 with reference to requiring additional information on the application form requesting License for storing and using Density Gauges. The completed NRC form 313 was previously submitted to you. As required the information for Items 3 through 12 have been revised and are provided on separate attached sheets. We are also enclosing an additional check for \$150.00 as requested by the licensing fee department. We trust the information supplied to you is adequate. If need any additional information or additional clarifications please do not hesitate to call our office at 219-865-9023. We would very much appreciate a quick response on this matter as were pressed for time due to relatively short construction season.

Very truly yours

Great Lakes Soil & Environmental Consultants Inc.



Doppalapudi S. Rao, P.E.
Principal

Sanjeev Bandi, Ph.D., P.E.
Principal

RECEIVED

JUL 02 1996

REGION III

Quality, Service & Commitment

301422



UNITED STATES
NUCLEAR REGULATORY COMMISSION

REGION III
801 WARRENVILLE ROAD
LISLE, ILLINOIS 60532-4351

JUN 20 1996

COPY

Doppalapudi S. Rao, Principal
Great Lakes Soil & Environmental
Consultants, Inc.
1743 Novo Drive
Schererville, IN 46375

Dear Mr. Rao:

We have reviewed your June 8, 1996 application for a new material license and find that we need additional information as follows.

It is necessary for you to resubmit your request in its entirety by responding in detail to item numbers 3 through 11 in the enclosed Draft Regulatory Guide DG-0008, "Applications for the Use of Sealed Sources in Portable Gauging Devices." This is necessary because your application does not contain detailed responses to the items listed above. Please note that we will not approve your request for a license if this information is not provided. Before you submit this additional information, you may wish to check it for completeness by referring to the "Checklist for Applications" as found in Appendix L of DG-0008.

We will continue our review of your application upon receipt of this information. Please reply in duplicate, within 30 days, and refer to Control Number 301422.

If you have any questions or require clarification on any of the information stated above, you may contact us at (708) 829-9887.

Sincerely,

Michael F. Weber
Nuclear Materials Licensing Branch

- Enclosures:
1. Regulatory Guide DG-0008
 2. NRC Form 313
 3. NUREG/BR-0133, Working
Safely With Nuclear Gauges

Application for Material License
NRC Form 313

Items 3 through 12

ITEM 3 Address where Material will be used or possessed

The permanent address for storage is 1743 Novo Drive, Schererville, IN 46375
The gauges will also be used on Temporary Job sites within the Northern Indiana Area, Michigan, and Chicago Areas.

ITEM 4 Name of Contact Person

Sudhakar Rao Doppalapudi

ITEM 5 Radioactive Material

The following Radioactive source information was supplied by the density gauge manufacturer (Troxler Electronics Inc., Research Triangle, North Carolina) on the most likely gauge to be obtained by our company.

Radionuclide, Maximum activity per source

Cesium -137, Max. activity per source - 9mCi

Americium -241:Be, Max. activity per source - 44mCi

Sealed Source

Manufacturer: Troxler Electronic Inc., Research Triangle, NC

Cesium Cs - 137 Reg. certificate number: A102112

Americium Am - 241, Reg. certificate number: A102451

Device: Troxler Electronics Inc.

NRC Registration No. NC-646-D-130-5

We anticipate a total for 5 density gauges over a period of 5 years. Hence we would like to apply for a license with a maximum of radioactive source equivalent to 5 density gauges.

ITEM 6 Purpose for which licensed material will be used.

The sealed source in the Nuclear Density Gauge will be used to measure the density and moisture content of the in-place soil, aggregate, concrete and asphalt. The gauge will only be used for this purpose and be used safely as per the manufacturer's recommendations.

The sealed source will not be lowered into the ground by more than 1.0 foot.

ITEM 7 Individual responsible for Radiation safety program

Radiation Safety Officer(RSO) Sudhakar Rao Doppalapudi P. E

Training/Background: RSO has a Bachelors and Masters in Civil Engineering. He has been working as a Geotechnical Engineer for the last 9 years. Mr. Rao has obtained his training in Radiation Safety and usage of the density gauges from the course taught by the Illinois Department of Transportation "S-34 Radiation Safety and Density by the Nuclear Method". A copy of the letter acknowledging this is attached. During the past years Mr. Rao was involved with managing 7 density gauge user's. His responsibilities involved safety and provide in-house training to the employees. The course schedule listed in Appendix D appears to be similar to the course offered by the Illinois Department of Transportation. At the present time I do not recall the Instructors name and Qualifications. We have every reason to believe that particular individual meets the qualifications listed in Part II of Appendix D

Duties/Responsibilities: Duties and responsibilities of our RSO are as follows but are not limited to these.

The RSO listed above is also a Principal owner of the company. As a principal owner and RSO he has complete authority to stop any unsafe operations. As a RSO I will commit appropriate amount of my time to ensure that the radioactive materials are used only by the authorized individuals and in a safe manner. Copies of the Regulations and amendments will be reviewed by the RSO and the applicable changes will be made as needed. A copy of the company's Organizational chart is attached.

- Ensure that the sealed source (density gauge) is always under lock and key when not in use.
- Ensure that all the individuals using the gauges are properly trained by the gauge manufacturer and the RSO
- Review emergency procedures with all the individual using the density gauges.
- Ensure personal monitoring devices are used and reports are reviewed frequently.
- Ensure that proper authorities are notified in case of any accidents, damage to the gauge, fire and theft.
- Perform Leak tests every 6 months.
- All the items listed under Appendix C of the Draft Regulatory Guide DG-0008 dated May 1995 will be followed duly.

ITEM 8 Training for Individuals working with the gauges

All the individuals using the density gauges will be trained by the gauge manufacture and also by the RSO. We commit to the safety of the gauges and the individuals operating the gauges. All the individuals will be given refresher training every year and emergency response awareness training every 6 months. The refresher training would involve participating in "dry runs" of emergency procedures and reviewing of the operating and

emergency procedures, DOT requirements, changes in regulations and deficiencies identified during the performance of annual audits of the radiation safety program. Records of the refresher training will be maintained and updated by the RSO.

All individuals gauge users will be issued a copies of the gauge operations and Emergency response manuals. No individual who does not have the training and is not authorized by the RSO will use the Gauge. Adequate documentation of the training, authorization and other pertinent documents will be maintained by the RSO.

Every attempt will be made to provide each individual with safety training given by the gauge manufacturer. However if an alternative course is received, we would commit to providing the information listed in ITEM 8.2 of the Draft Regulatory Guide DG-0008.

ITEM 9 Facilities and Equipment

At the present time the gauges are intended to be stored in the residential building at the above referenced address. However we do anticipate obtaining a office space in a commercial/Industrial zone in the very near future. The storage space within the existing residential building is restricted and does not include residential living quarters. A copy of the location of the proposed storage facility within the house is attached. The above residence is always locked. The sealed source within the gauges will always be kept under lock and key when not in use. During transportation all the gauges will be placed within the locked trunk of the car. Strict emphasis will be placed on the individuals using the gauges to always keep the gauges in the trunk if the car when not in use at the job site. Our company policy is to make sure that the gauges return to its permanent storage place at the end of each working day. If the individual cannot make it back in time to return the gauge to the permanent storage place, all the individuals are stressed to keep the gauges under constant surveillance at their residence. Please note that this option is only under some unforeseen circumstances that the individual could not return to the storage place.

ITEM 10 Radiation Safety Program

Radiation Safety program will consist of the following:

- i) Personal Monitoring Program: All the individuals will be supplied with radioactive film badges to determine their exposure. The exposure limits will be reviewed every month to verify that they do not exceed the 10% of the allowable limit. in addition a control film badge will be located close to the gauge to verify the storage place exposure.
- ii) Radiation Detection Instruments: We would like to set-up an agreement with the gauge manufacturer to provide us with a survey meter in case of any emergency at any of the job sites. In addition due to the close proximity of the possible sites to the NRC office in the Chicago area we would like to see if we can get some assistance in obtaining a survey meter from the NRC office.

iii) Leak Testing: all the density gauges will be tested for leaks every 6 months. Commercially available leak test kits supplied by the manufacturer (Troxler Electronics Inc.) will be used. A smear of the source rod will be taken by our trained individual and the smear paper will be sent to the kit supplier for evaluation. The leak tests results will be analyzed by the gauge manufacturer and the results will be submitted.

iv) Inventories: The company RSO would keep documentation of all the sealed sources and devices received and possessed under the license. The RSO will also maintain a record of the inventory every 6 months.

v) Maintenance: The density gauges will be sent for regular maintenance and calibration every year. During this the manufacturer services the gauge calibrates and checks for any damage to the gauges. In addition periodic cleaning will be performed to the gauge with the source rod in the safe position. At any time if the source rod needs to be removed from the gauge, the entire gauge will be sent to the manufacturer for repair.

vi) Transportation: All applicable NRC and DOT laws will be followed, in addition to the precautions listed above. Each individual will be supplied with an emergency response procedure plan outlining the steps to be taken in case of an emergency such as damage, theft, fire or sealed source getting stuck in the ground.

vii) Operating and Emergency Procedures: We commit to having and implementing operations and emergency procedures as indicated by the manufacturer and NRC. We commit to providing all gauge users with a copy of the operating and emergency guide to all authorized gauge users. We commit to having a copy of the operating and emergency procedures at each job site and with each individual user. A copy of the "Standard Operating and Emergency Procedures" are attached. At no time the sealed source will be lowered more than 12.0 inches below the surface of the gauge.

viii) Annual Audit: Annual audit of the radiation safety program will be performed and the results will be documented for future review by the RSO. In addition "mini-inspections" will also be performed every 3 to 6 months. Annual audits will be performed by the other principal owner of the company (Dr. Sanjeev Bandi Ph.D., P.E). The scope, extent of audits will be conducted as described in Appendix I of the regulatory guide DG-0008. Frequency of the audits will not exceed 12 months. The management and the RSO will review the results of the audit promptly. Prompt corrective action will be taken of any deficiencies and all the individuals will also be notified.

ix) Financial Assurance and Recordkeeping: We do not anticipate to exceed the threshold for the sealed sources. As indicated previously we are anticipating of having only about 5 to 6 gauges over a period of 5 to 6 years. The threshold for this would not exceed the limits. A detailed records will be maintained of all the sealed sources and devices for decommissioning at a later date if required. All the records will be maintained by the RSO.

ITEM 11 Waste Management

Disposal of the sealed source would involve returning the gauges to the manufacture.

ITEM 12 Licensee Fee

As understood from the 10CFR170.12, 10CFR171.11 & 10CFR171.16 since the company's gross would be less than \$350,000 we are submitting a fee of \$ 550.00



Illinois Department of Transportation

Bureau of Materials and Physical Research
126 East Ash Street / Springfield, Illinois / 62704-4766

March 1, 1995

Mr. Sudhakar Rao
K & S Testing & Engineering
9715 Kennedy Avenue
Highland, Indiana 46322

Dear Mr. Rao:

This is to acknowledge your attendance at our presentation for radiation safety training, "S-34 Radiation Safety and Density by the Nuclear Method" course, which was presented at the Illinois Department of Transportation, District 1 Headquarters on March 24, 1988, and your score of 100 percent on the written exam.

This letter, along with documentation of your experience since attending the above named class, may suffice as evidence to request authorization from the Nuclear Regulatory Commission to operate a portable nuclear moisture-density gauge.

If you have any questions, please contact Mr. Dennis Rowe of this office at 217-782-7206.

Very truly yours,

J. G. Gehler, P.E.
Engineer of Materials
and Physical Research

A handwritten signature in cursive script that reads "Richard W. Hahn".

By:
Richard W. Hahn, P.E.
Engineer of Tests

DBR:blc

Great Lakes Soil & Environmental Consultants Inc.

1743 Novo Drive, Schererville, IN46375, Ph.: 219-865-9023, Fax: 219-865-8919

ORGANIZATIONAL CHART

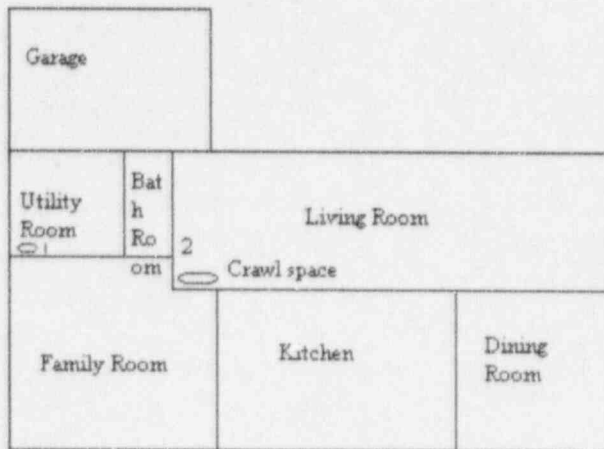
President/Chairman of Board: Sudhakar Rao Doppalapudi, P.E

Vice-President: Sanjeev Bandi, Ph.D, P.E

Secretary: Sudhakar Rao Doppalapudi

Treasurer: Sanjeev Bandi

The day to day management will be under direction of the President. All the technical work will be under direction of the Vice-President.



○ Possible Storage Sites of the Gauges

- 1 Gauge chained to work bench in the utility room
- 2 Gauge stored in the crawl space area

**NUCLEAR DENSITY GAUGE
STANDARD OPERATING & EMERGENCY PROCEDURES**

Operating Procedures

- 1) Before removing the gauge from its place of storage, check to make sure that the gauge source rod is in the shielded, locked position, then lock the transport case if possible.
- 2) Sign the gauge out in a log book, starting the dates of use, names of the authorized users who will be responsible for the gauge, and the temporary jobsites where the gauge will be used.
- 3) Never leave the gauge unattended while in your custody.
- 4) Follow all applicable Department of Transportation (DOT) requirements when transporting the gauge.
- 5) Do not touch the source rod with your fingers, hands, or any part of your body, and always make sure the source rod is in the shielded position after each measurement is made.
- 6) Always wear your assigned thermoluminescent dosimeter (TLD) or film badge when using the gauge.
- 7) Never wear another person's TLD or film badge.
- 8) Never store your TLD or film badge near the gauge.
- 9) Always keep unauthorized persons away from the area where the gauge is to be used.
- 10) Always maintain constant surveillance and immediate control of the gauge when it is not in storage.
- 11) To make gauges more visible to operators of heavy equipment at construction sites, always "stake and flag" each gauge, being sure that the flags are tall enough to be seen by heavy equipment operators.
- 12) Never look under the gauge when the source rod is being lowered into the ground.
- 13) After each measurement, always return the source rod to the shielded position and lock it there.
- 14) When the gauge is not in use at a temporary jobsite, place the gauge in a secured storage location (e.g., locked in the trunk of a car or locked in a storage shed)

Great Lakes Soil & Environmental Consultants Inc.

1743 Novo Drive, Schererville, IN46375, Ph.: 219-865-9023, Fax: 219-865-8919

15) Return the gauge to its proper storage location at the end of the work shift.

16) When the gauge is returned to storage, so indicate in the source log.

Emergency Procedures

If the source fails to return to the shielded position or if any other emergency or unusual situation arises (e.g., the gauge is struck by a moving vehicle, is dropped, or is in a vehicle involved in an accident):

1) Immediately secure the area around the gauge.

2) Prevent unauthorized personnel from entering the secured area.

3) If any heavy equipment is involved, detain the equipment until it is determined there is no contamination present.

4) Notify immediately the following personnel

Sudhakar Rao Doppalapudi Ph.219-865-9023 work ; 312-218-8634 mobile;

219-865-8919 home

Sanjeev Bandi, Ph. 810-449-3210 work ; 313-929-0560 mobile ; 810-344-1787 home

5) Follow the direction provided by the Radiation Safety Officer (RSO).

6) Licensee Management Must:

i) Arrange for a survey to be conducted as soon as possible by a knowledgeable person using appropriate radiation detection instrumentation.

ii) Make necessary notifications to local authorities: notify the NRC as required. NRC's Emergency Operations Center at 301-816-5100. This number is functional 24 hours a day and also accepts collect calls. NRC notification is required when gauges containing licensed material are lost or stolen, and when gauges are damaged or involved in incidents that result in doses in excess of the dose limits in 10 CFR 20.223.

Contin. to 301422

GREAT LAKES SOIL ENVIRONMENTAL
CONSULTANTS INC.

1743 NOVO DR. PH. 219-865-9023
SCHERERVILLE, IN 46375

10-95

1059

6/28/1996

71-287/719
04

PAY TO THE
ORDER OF

U.S. Nuclear Regulatory Commission \$ 150/-

one hundred fifty and no/100 cents DOLLARS


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Highland, Indiana
46322-2699

FOR

Inc.

⑆071902878⑆ ⑈17004003⑈ 1059

301422

JUN 20 1996

Doppalapudi S. Rao, Principal
Great Lakes Soil & Environmental
Consultants, Inc.
1743 Novo Drive
Schererville, IN 46375

Dear Mr. Rao:

We have reviewed your June 8, 1996 application for a new material license and find that we need additional information as follows.

It is necessary for you to resubmit your request in its entirety by responding in detail to item numbers 3 through 11 in the enclosed Draft Regulatory Guide DG-0008, "Applications for the Use of Sealed Sources in Portable Gauging Devices." This is necessary because your application does not contain detailed responses to the items listed above. Please note that we will not approve your request for a license if this information is not provided. Before you submit this additional information, you may wish to check it for completeness by referring to the "Checklist for Applications" as found in Appendix L of DG-0008.

We will continue our review of your application upon receipt of this information. Please reply in duplicate, within 30 days, and refer to Control Number 301422.

If you have any questions or require clarification on any of the information stated above, you may contact us at (708) 829-9887.

Sincerely,

Original Signed By
Michael F. Weber
Nuclear Materials Licensing Branch

- Enclosures: 1. Regulatory Guide DG-0008
2. NRC Form 313
3. NUREG/BR-0133, Working
Safely With Nuclear Gauges

DOCUMENT NAME: M:\03034173.DF6

To receive a copy of this document, indicate in the box: "C" = Copy without enclosures "E" = Copy with enclosures "N" = No copy

OFFICE	DNMS/RIII								
NAME	MFWEBER:jaw								
DATE	06/19/96								

OFFICIAL RECORD COPY