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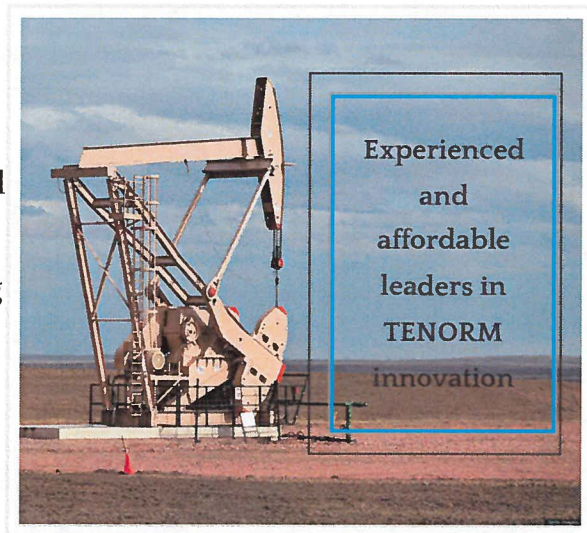
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Welcome to Advanced TENORM Services!

We are a 100% US-owned, privately-held company providing rapid result TENORM analysis, optional onsite cutting edge custom TENORM analysis equipment, economical TENORM disposal options, TENORM treatment options, and TENORM management support.

We provide our clients with easy access to routine and specialized testing, safety management, treatment, and disposal options for solid and liquid TENORM. Our team is comprised of dedicated professionals with top level Ph.D. nuclear physicists, health physicists, engineers, and geologists who can tackle all your TENORM challenges.

Whether it is routine work or something more specialized, our service delivery is



geared towards making your life easier and more economical. We pride ourselves on being the innovative, experienced, and affordable leaders on TENORM innovation.

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## SERVICES



Provide cutting edge 1-hour *rapid turn* TENORM testing equipment and services

Provide 1-hour *rapid turn* TENORM testing services

Full service TENORM management for field service activities (O&G companies, landfills, O&G waste treatment facilities, environmental consultants)

TENORM consulting available for testing laboratories

Economical state-specific TENORM disposal and related equipment services and consulting

State of the art state-specific TENORM treatment services and consulting

Affiliation with various universities for TENORM waste R&D projects

Radiation protection plans and subsequent requirements

NORM/TENORM safety procedures, audits, and consulting

- NORM/TENORM surveys, dose assessments, and facility audits
- NORM/TENORM/radiation training
- Radiation safety officers
- Oil and gas permitting
- Dependability, reliability, and quick responses
- Communication with our clients
- State of the art laboratory facilities
- 24-hours/seven days a week service
- CRCPD E-42 task force to review the TENORM aspects of the oil and gas industry advisor
- ASTM radiological testing voting member

## Treatment and Disposal

Advanced TENORM Services offers world class treatment and disposal services to anyone needing to dispose of TENORM material. At Advanced TENORM Services, we have PhD Nuclear Physicists, Engineers, and Environmental Compliance Experts looking to solve your TENORM treatment and disposal needs in the safest, most economical manner possible.

We utilize our large network of facilities and partners located across United States and Canada to minimize your cost making your company more productive.

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## TENORM

As a leader in the oil and gas industry, we understand the importance of delivering quick, accurate testing results.

That is why, at Advanced TENORM Services, we guarantee fast, accurate turnaround times on required tests. We can also equip your laboratory with our technology, enabling you to reduce costs and supply your own certified test analysis.

Advanced TENORM's goal is to provide timely and reliable data, while still maintaining the highest level of integrity, technology, customer service, and technical support in the industry. To achieve this goal, Advanced TENORM Services has developed a quality assurance program to govern all aspects of the business: testing, consulting, treatment, and disposal services.

### About TENORM

TENORM is produced when radionuclides that occur naturally in ores, soils, water, or other natural materials are concentrated or exposed to the environment by activities, such as uranium mining or sewage treatment.

Radioactive materials can be classified under two broad headings:

man-made

naturally occurring radioactive materials (NORM).

Man-made radionuclides are produced by splitting atoms in nuclear reactors or by bombarding atoms with subatomic particles in accelerators, nuclear reactors, and other devices. Examples of man-made radionuclides include cobalt-60, strontium-90, and cesium-137. Radionuclides in Naturally-Occurring Radioactive Material (NORM) include primordial radionuclides that are naturally present in the rocks and minerals of the earth's crust and cosmogenic radionuclides produced by interactions of cosmic nucleons with target atoms in the atmosphere and in the earth. Example of cosmogenic radionuclides include carbon-14 and tritium (hydrogen-3). Materials containing cosmogenic radionuclides also fall under the definition of NORM but natural concentrations of nuclides generated by cosmic nucleons are small and present minimal risks.

NORM consists primarily of material containing potassium-40 and isotopes belonging to the primordial series. The principal primordial radionuclides are isotopes of heavy elements belonging to the radioactive series headed by the three long-lived isotopes uranium-238 (uranium series), uranium-235 (actinium series), and thorium-232 (thorium series). All three of these series have numerous radionuclides in their decay chains before reaching a stable end point, lead. At background concentrations, the naturally occurring radionuclides in the uranium, actinium, and thorium series contribute about one-half of the natural background external radiation, and over 80 percent of the background including radon, to which all humans are continuously exposed.

The principal radionuclide of concern in TENORM/NORM is radium-226, a member of the uranium series, which is present in natural soils in concentrations of about 1 pico Curie per gram (Ci/g). However, NORM radioisotopes may be present in different materials in varying concentrations, and some TENORM/NORM wastes may have radium-226 concentrations that are much higher than 1 pCi/g, and may be as high as hundreds of thousands of pCi/g.

The ultimate sources of the primordial radionuclides in the environment are the earth's crust and its underlying mantle. Selective movement of some materials from the mantle to the crust, usually resulting from fluid movement driven by

temperature differences, has caused a heterogeneous organization of the chemical elements in the crust. Redistribution has also occurred as a result of weathering, sedimentation, and chemical interactions in the crust. As a consequence of these processes, potassium-40 and the uranium and thorium series nuclides have tended to concentrate in certain minerals and certain geologic formations. For example, uranium in significantly elevated concentrations is associated with phosphate ores in three major locations in the U.S.: southeastern Idaho and parts of neighboring states, central Florida, and central Tennessee and northern Alabama. Radionuclides from the uranium and thorium series are also associated in widely varying proportions in the crude oil and brine extracted from underground petroleum reservoirs.

NORM wastes are the radioactive residues from the extraction, treatment, and purification of minerals, petroleum products, or other substances obtained from parent materials that may contain elevated concentrations of primordial radionuclides. They also include any radioactive material made more accessible by the actions of man. Each year, hundreds of millions of metric tons of NORM waste are generated from a wide variety of processes, ranging from uranium and phosphate mining to municipal drinking water treatment. Processes that produce NORM wastes analyzed in this study include uranium mining, phosphate and elemental phosphorus production, phosphate fertilizer production, coal ash generation, oil and gas production, drinking water treatment, metal mining and processing, and geothermal energy production. Primordial radionuclides present in the parent materials can become concentrated in the wastes during mining and beneficiation, mineral processing, oil and gas extraction, or various other processes. This results in radionuclide concentrations in NORM wastes that are often orders of magnitude higher than in the parent materials.

The exposure to individuals from NORM wastes occurs in three main ways. The first is associated with the normal onsite disposal of the waste in piles or stacks. This type of disposal can lead to groundwater contamination and to airborne releases of radioactive particulates and radon. The second is from the improper use and/or disposal of these wastes, such as for soil conditioning or fill dirt around homes. This can lead to build-up of radon gas in homes, direct exposure to individuals located nearby, contamination of soil and the crops growing in that

soil, and groundwater contamination. The third way is the reuse of NORM-contaminated materials, such as in concrete aggregate, which could lead to increased radiation risks to members of the public in a variety of ways.

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## ABOUT OUR COMPANY

### Cory Hoskins - President

Cory holds a physics degree and mathematics minor and has 15 years of experience in environmental compliance, including complex radiological issues in various states. He is also the president of bes environmental services, a company providing environmental remediation, transportation, disposal, laboratory and consulting services to general industry, municipalities, and military and government entities.

### Leong Ying - Vice President

Leong Ying holds a PH.D. in Nuclear Physics from the University of Liverpool in England. Mr. Ying is an accomplished physicist with many published science articles specifically on the subject of TENORM. His most recent positions include serving as the Radiological Business Unit Director for both Fisher Scientific and Princeton Gamma Tech. Leong is credited with developing many testing and treatment technologies within the industry.

We also employ an assortment of mechanical, electrical, and civil/environmental engineers, along with experienced physicists, scientists, geologists, and business professionals (MBA's).

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## CONTACT US

### Kentucky Office

151 University Drive  
West Liberty, KY 41472

### Ohio Office

7675 East Pike  
Norwich, OH 43767

### Phone

606.776.9030

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### Contact Us

**Name** (required)

**Email** (required)

**Company Name**

**Comment** (required)

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**Advanced TENORM Services  
7675 East Pike  
Norwich, Ohio 43767**



**Advanced TENORM Services  
151 University Drive  
West Liberty, KY 41472**

Advanced TENORM Services  
KY Lab ID #: 08061

05/06/2015

KY Category	CAS #	Analyte	Status	Reference Method	MDL	MRL	Units	ATP	Method Mod
Field	N/A	pH	Interim	SM 4500 H <sup>+</sup> B-2000	N/A	N/A	S.U.		
Inorganic/Gen Chem	N/A	Oil and Grease	Interim	EPA 1664 Rev. A	3.8	5	mg/L		
Inorganic/Gen Chem	N/A	Total Suspended Solids	Interim	SM 2540 D-1997	N/A	2.5	mg/L		



**TEMPO360 Records for Advanced TENORM Services**  
**AI 125200**  
**32 Crestview Drive**  
**West Liberty, KY 41472**

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**Central File**

AI ID: 125200 AI Name: Advanced TENORM Services County: Morgan Open Master File Select Agency Interest

125200: Advanced TENORM Services (TECH-Professional, Scientific, & Tech Svcs (54)) 32 Crestview Dr, West Liberty, (Morgan), KY 41472

Retrieve Activities Returned 0 Activities, 0 Documents

Category: [ALL] Type: [ALL] Document Title:   
 Program: Hazardous Waste Status: [ALL] Refresh Reset  
 Class: [ALL] Year:

Activities: All Documents Personal Document Actions Create New Document Paging Filter Total Records: 0  
 DocumentActivities Creation Date Checked Out To Checked Out Date Effective Dates  
 No records to display  
 Page size: 30 0 items in 1 pages

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125200: Advanced TENORM Services (TECH-Professional, Scientific, & Tech Svcs (54)) 32 Crestview Dr, West Liberty, (Morgan), KY 41472

Retrieve Activities Returned 0 Activities, 0 Documents

Category: [ALL] Type: [ALL] Document Title:   
 Program: Air Status: [ALL] Refresh Reset  
 Class: [ALL] Year:

Activities: All Documents Personal Document Actions Create New Document Paging Filter Total Records: 0  
 DocumentActivities Creation Date Checked Out To Checked Out Date Effective Dates  
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Retrieve Activities Returned 2 Activities, 41 Documents

Category: [ALL] Type: [ALL] Document Title:   
 Program: Wastewater Status: [ALL] Refresh Reset  
 Class: [ALL] Year:

Activities: All Documents Personal Document Actions Create New Document Paging Filter Total Records: 41  
 DocumentActivities Creation Date Checked Out To Checked Out Date Effective Dates

DocumentActivities	Creation Date	Checked Out To	Checked Out Date	Effective Dates
Wastewater: CLC2015002 Certification Package In Progress - 04/01/2015				
Work Activity Log	04/1/2015			
KY0001 WW Certification Package 2015.pdf	04/1/2015			
KY0001 WW Method Analyte List 2015.xlsx	04/1/2015			
KY0001 WW Method Analyte List 2015 01.xlsx	04/02/2015			

Work Activity Log	03/10/2015				
KY0881 WW Application 2015.pdf	03/17/2015				
KY0881 WW correspondence 31015.mca	03/17/2015				
KY0881 WW DC MDL 2015.pdf	03/17/2015				
KY0881 WW ET 2015.pdf	03/17/2015				
KY0881 WW GAP 2015.pdf	03/17/2015				
KY0881 WW SOP Oil and Grease 2015.pdf	03/17/2015				
KY0881 WW SOP oil 2015.pdf	03/17/2015				
KY0881 WW SOP TSS 2015.pdf	03/17/2015				
KY0881 WW SOP O and G 2015 complete.pdf	03/23/2015				
KY0881 WW Fees Report 2015.pdf	03/24/2015				
KY0881 WW Request for Refund March 24 2015.pdf	03/24/2015				
KY0881 WW Ass Credits 2015.pdf	03/30/2015				
KY0881 WW Certification Package 2015.pdf	04/2/2015				
KY0881 WW CAP Deviation Table May 01 2015.pdf	05/1/2015				
KY0881 WW CAP Container Management.pdf	05/1/2015				
KY0881 WW CAP Container Vendor Form.pdf	05/1/2015				
KY0881 WW CAP Container Asbestos Matrix.pdf	05/1/2015				
KY0881 WW CAP Container Documents List.pdf	05/1/2015				
KY0881 WW CAP Corrective Action.pdf	05/1/2015				
KY0881 WW CAP Document Transfer.pdf	05/1/2015				
KY0881 WW CAP Records Management Procedure.pdf	05/1/2015				
KY0881 WW CAP Sampling Procedure.pdf	05/1/2015				
KY0881 WW CAP SOP Oil and Grease Method 1984.pdf	05/1/2015				
KY0881 WW CAP SOP PH Method 150.2.pdf	05/1/2015				
KY0881 WW CAP SOP TSS Method 160.2.pdf	05/1/2015				

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Wastewater	CLC016001	Annual Application Package	Corrective Action Rpt - Technical Review Completed - 06/12/2015 - Completed
KY0881 WW CAP TNE-04-A-00-2-23-11-Rev1.pdf	05/1/2015		
KY0881 WW CAP TNE-04-Seq-22-2-22-11-Rev1.pdf	05/1/2015		
KY0881 WW CAP TNE-04-Seq-25-2-22-11-Rev1.pdf	05/1/2015		
KY0881 WW CAP TNE-04-Seq-27-2-22-11-Rev1.pdf	05/1/2015		
KY0881 WW CAP AT3-RO Corrective Action Instructions.pdf	05/1/2015		
KY0881 WW CAP AT3-RO Corrective Action Blank EQ Form.pdf	05/1/2015		
KY0881 WW DOW Response to CAP Letter May 09 2015.pdf	05/09/2015		
KY0881 WW DOW Response to CAP Table May 09 2015.docx	05/09/2015		
KY0881 WW CAP May 12 2015.docx	05/12/2015		
KY0881 WW DOW Response to CAP Letter May 12 2015.pdf	05/12/2015		
KY0881 WW DOW Response to CAP Table May 12 2015.docx	05/12/2015		

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