## **Executive Summary of Qualifications**



**TetraTek**, **Inc.** is a Veteran-Owned Small Business operating since 1995. TetraTek, Inc. is Native American owned and is comprised of experienced fire protection/safety engineers and technical staff, regulatory/nuclear compliance and emergency response professionals with technical field expertise, technical educational backgrounds, NFPA Technical Committee Members and professional certifications and memberships.

As NFPA Technical Committee Members, not only does TetraTek, Inc. interpret National Consensus Codes and Standards, we also develop them through the policy making process (we help develop the codes).



TetraTek, Inc. provides technical services to Federal, State, City and County governments, nuclear and enrichment facilities, nuclear power plants, private and commercial industries and academic institutions. TetraTek's commitment to Quality Assurance (ASME NQA-1) and project safety (zero accidents in TetraTek's company history) provide our clients with cost effective and efficient safe operations.

The experience and proven performance of TetraTek's staff enable us to provide quality programs and unparalleled services when our services are needed (project/program specific and/or short or long term staff augmentation). • U.S. Department of Energy (DOE) • U.S. Department of Defense (DOD) MEMBER • U.S. Nuclear Regulatory Regulatory Commission (NRC) Compliance Nuclear Power Plants Enrichment Facilities Federal, State, City, and **Fire Protection County Governments**  Private Industry & Safety

• Academic Community

ergency

Emergency Response Compliance

PO Box 1094 Brighton, CO 80601

## TetraTek, Inc.

Engineering

Nuclear

Facility

Compliance

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## **Executive Summary of Personnel Qualifications**

## TetraTek, Inc. is a Veteran-Owned Small Business operating since 1995.

TetraTek, Inc. is Native American owned and is comprised of experienced fire protection/safety engineers and technical staff, regulatory/nuclear compliance and emergency response professionals with technical field expertise, technical educational backgrounds, NFPA Technical Committee Members and professional certifications and memberships.

The experience and proven performance of TetraTek's technical staff enable us to provide cost effective quality programs and unparalleled services when needed. We understand that at times additional professionals are needed to assist your existing workforce (project/program specific and/or short or long term staff augmentation). Additionally, TetraTek has a cadre of professional relationships of varying expertise and educational levels that can be provided on an as needed basis for your specific needs.



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## **Qualifications/Areas of Expertise**

TetraTek, Inc. has the expertise listed below in addition to a cadre of professional relationships of varying expertise and educational levels that can be provided, on an as needed basis, for your specific needs.

EDUCATION	PROFESSIONAL CERTIFICATIONS
M.S. Fire Protection & Safety Engineering B.S. Fire Protection & Safety Engineering B.S. Mechanical Engineering	Professional Engineer (P.E.) License Certified Fire Protection Specialist (CFPS) Certified Fire & Explosion Investigator (CFEI) Certified Fire Investigator Instructor (CFII) Certified Fire Officer & Fire Fighter
	Certified Hazardous Materials Responders/Instructors
PROFESSIONAL MEMBERSHIPS	NFPA TECHNICAL COMMITTEES
Society of Fire Protection Engineers (SFPE) National Fire Protection Association (NFPA) American Society of Safety Engineers (ASSE) National Association of Fire Investigators (NAFI)	NFPA 115, Standard for Laser Fire Protection NFPA 241, Standard for Safeguarding Construction, Alteration and Demolition Operations NFPA 520, Standard on Subterranean Spaces NFPA 801, Standard for Fire Protection for Facilities Handling Radioactive Materials NFPA 804, Standard for Fire Protection for Advanced Light Water Reactor Electric Generating Plants NFPA 805, Performance-Based Standard for Fire Protection for Advanced Light Water Reactor Electric Generating Plants NFPA 806, Performance-Base d Standard for Fire Protection for Advanced Nuclear Reactor Electric Generating Plants Change Process NFPA 921, Guide for Fire and Explosion Investigations (Original Committee) NFPA 1660, Standard on Community Risk Assessment, Pre-Incident
	Planning, Mass Evacuation, Sheltering, and Re-entry Programs EXPERTISE
<ul> <li>Fire Protection and Safety Engineering</li> <li>Fire Protection Programs</li> <li>National Consensus Codes and Standards Compliance</li> <li>Code Analysis</li> <li>Fire Protection Systems Engineering</li> <li>Fire Protection Engineering Analyses &amp; Assessments</li> <li>Deficiency Identification and Noncompliance Resolution</li> <li>Decontamination and Decommissioning Fire Safety (NFPA 241)</li> <li>Industrial and Construction Fire Safety</li> <li>Life Safety Compliance (NFPA 101)</li> <li>Alternative Approaches to Life Safety (NFPA 101A)</li> <li>Fire and Explosion Investigations</li> </ul> Emergency Response Compliance <ul> <li>Fire Department &amp; Emergency Response Operations</li> <li>Pre-Incident Planning (NFPA1660)</li> <li>Emergency Preparedness</li> <li>Baseline Needs Assessments</li> <li>Hazardous Materials Operations</li> <li>Mutual Aid Agreements/Memoranda of Understanding (MOU)</li> </ul>	Regulatory Compliance         •       National Consensus Codes and Standards Compliance         •       Code of Federal Regulations (CFR)         •       Occupational Safety & Health Administration (OSHA)         •       National Fire Protection Association (NFPA) Codes         •       Standards         •       International Code Council (ICC)         •       International Fire Code (IFC)         •       International Building Codes (IBC)         •       Code Analysis         •       Deficiency Identification and Noncompliance Resolution         •       Fire Protection Programs         •       Fire Protection Licensing and Regulatory Compliance Support         •       NPPA Nuclear Facility Codes Implementation         •       Nuclear Facility Codes Implementation         •       Nuclear Facilities (NFPA 801)         •       Enrichment (Fuel Cycle Facilities)         •       Decontamination & Decommissioning Fire Safety (NFPA 241)         •       Code Analysis         <

PO Box 1094 Brighton, CO 80601 TetraTek, Inc. www.tetratekinc.com

## **Fire Protection & Safety Engineering**

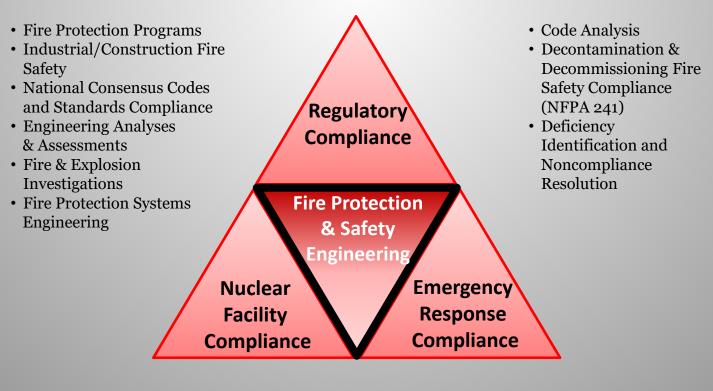


Then, U.S. DOE East Tennessee Technology Park, K-25 Building and in 2012

Fire Protection and Safety Engineering is the application of scientific and engineering principles, National Consensus Codes and Standards, and expert judgment, based on an understanding of the phenomena and effects of fire and smoke and of the reaction and behavior of people to fire and smoke.

These principles provide measures to minimize loss of life, injuries, environmental impacts and property from the destructive effects of fire and smoke.

TetraTek, Inc. provides a broad spectrum of Fire Protection and Safety Engineering support services to include the following:



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## TetraTek, Inc.

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## Fire Protection and Safety Engineering <u>Code Analysis</u>

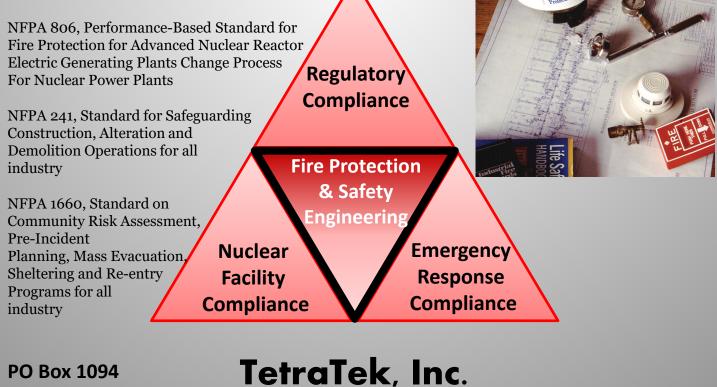
As former regulators, TetraTek, Inc. industry consultants have in-depth experience performing Code Analyses for Facilities, Fire Protection Programs and Processes throughout the industry determining conformance to National Consensus Codes and Standards and Regulatory Requirements. As NFPA Technical Committee Members, not only does TetraTek, Inc. interpret National Consensus Codes and Standards, we also develop them through the policy making process (we write the codes). Additionally, TetraTek, Inc. staff have the knowledge and are successful utilizing alternative approaches and innovative solutions (Code Equivalency Process) to meet the regulatory intent. This Code Equivalency Process is then formulated to meet the objectives of the Organization, Regulator and/or Authority Having Jurisdiction.

As NFPA Technical Committee Members on several pertinent National Consensus Codes and Standards, TetraTek, Inc. interpretations are well received by Organizations, Regulators and Authorities Having Jurisdiction. TetraTek, Inc. personnel are NFPA Technical Committee Members on the following NFPA National Consensus Codes and Standards:

NFPA 801, Standard for Fire Protection for Facilities Handling Radioactive Materials for U.S. DOE Nuclear Facilities and Enrichment Facilities (Fuel Cycle Facilities)

NFPA 805, Performance Based, Standard for Fire Protection for Advanced Light Water Reactor Electric Generating Plants for Nuclear Power Plants as an alternative to 10 CFR 50, Appendix R

NFPA 804, Standard for Fire Protection for Advanced Light Water Reactor Electric Generating Plants for Nuclear Power Plants

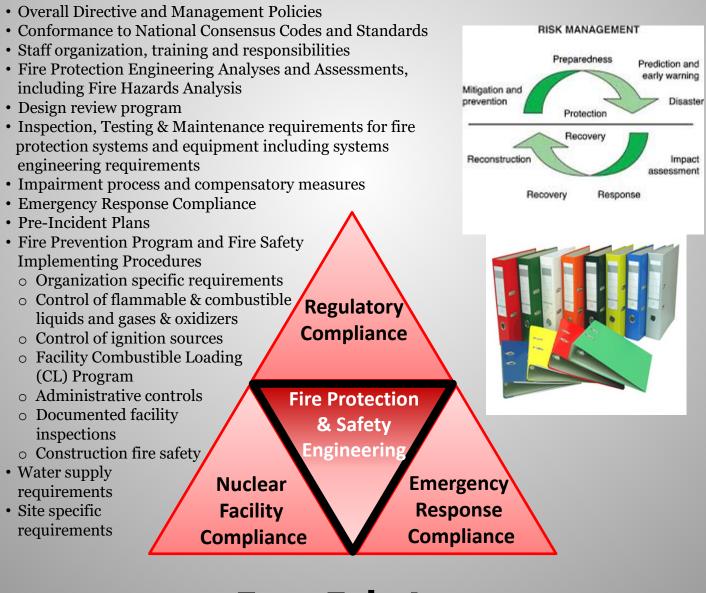


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## Fire Protection and Safety Engineering <u>Fire Protection Programs</u>

TetraTek, Inc. has in-depth experience evaluating, developing, implementing and managing (if applicable) comprehensive Fire Protection Programs and/or evaluating, revising and updating existing Fire Protection Programs. A compliant Fire Protection Program will meet the fire safety policy objectives of the Organization, Regulator and/or Authority Having Jurisdiction. As NFPA Technical Committee Members, not only does TetraTek, Inc. interpret National Consensus Codes and Standards, we also develop them through the policy making process (we write the codes). The industry standard Fire Protection Program includes:



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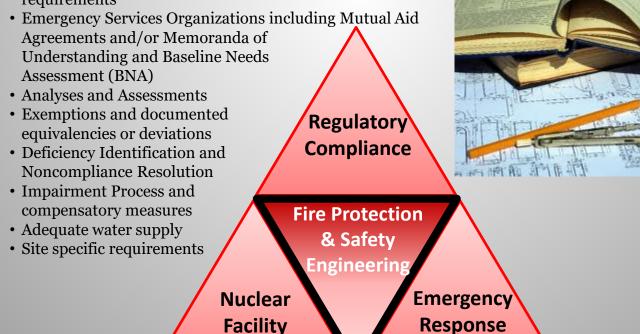
## Fire Protection and Safety Engineering <u>Fire Protection Program Assessments</u>

TetraTek, Inc. has in-depth experience conducting Fire Protection Program Assessments throughout the industry utilizing National Consensus Codes and Standards to meet regulatory requirements. The principal objective of a Fire Protection Program Assessment is to identify deficiencies that would prevent achieving the Organization, Regulator and/or the Authority Having Jurisdiction fire safety policy objectives. This Fire Protection Program Assessment will result in a compliance based corrective action guidance report. The Fire Protection Program Assessment is utilized to evaluate the comprehensiveness of the Fire Protection Program elements to include:

- Comprehensiveness of the Fire Protection Programs
- Conformance with National Consensus Codes and Standards Compliance & Regulatory Requirements
- Management commitment
- Fire protection engineering staff (number, qualifications, training)
- Procedures for engineering design and review
- Fire Prevention Program and Fire Safety Implementing Procedures

Compliance

• Procedures and records for maintenance, testing, and inspection of installed fire protection systems and features, including Systems Engineering requirements



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## Fire Protection and Safety Engineering <u>Fire Protection Facility Assessments</u>

TetraTek, Inc. has in-depth experience conducting Fire Protection Facility Assessments throughout the industry utilizing National Consensus Codes and Standards to meet regulatory requirements. The principal objective of a Fire Protection Facility Assessment is to identify deficiencies that would prevent achieving the Organization, Regulator and/or Authority Having Jurisdiction fire safety policy objectives. This Fire Protection Facility Assessment will result in a compliance based corrective action guidance report. The Fire Protection Facility Assessment is utilized to evaluate the fire hazards and life safety and fire protection features inherent in specific facilities to include:

 Conformance with National **Consensus Codes and Standards** and Regulatory Requirements · Analyses and Assessments • Adequacy of water supply Water runoff impact · Life safety considerations Fire apparatus accessibility Facility fire prevention planning documents and Fire safety training Fire barrier integrity Fire loss potential (MPFL) Potential for toxic, biological and/or radiological incident due to fire • Fire Protection Systems & Regulatory Equipment; ITM Records, Systems **Engineering requirements** Compliance Safety class and safety significant equipment Vital programs **Fire Protection** • High-value property Administrative controls & Safety Impairment Process and Engineering compensatory measures Deficiency Nuclear Emergency Identification and Response Facility Noncompliance Compliance Compliance Resolution Site specific requirements

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## Fire Protection and Safety Engineering <u>Fire Hazards Analysis</u>

TetraTek, Inc. has in-depth experience performing Fire Hazards Analysis (FHA ) throughout the industry on industrial, high value, special hazards and high-profile facilities. TetraTek, Inc. provides this expertise for any type of facility including nuclear.

The purpose of a FHA is to comprehensively and qualitatively assess the risk from fire within individual fire areas in a facility to ascertain whether the Organization, Regulator and/or the Authority Having Jurisdiction fire safety objectives are met. This includes an assessment of the risk from fire and related hazards in relation to existing or proposed fire protection and life safety features to ensure that the facility can be safely controlled and stabilized during and after a fire. The level of detail necessary for an acceptable FHA is directly related to the complexity of the facility and the potential risk to facility occupants, public and the potential impact to the environment.

The general approach taken to complete this analysis involves the identification of the fire risks associated with existing or proposed operations and the fire protection and life safety features required to mitigate the adverse consequences from fire and smoke. Major elements analyzed include:



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## Fire Protection and Safety Engineering <u>Industrial, Construction and</u> <u>Decontamination &</u> <u>Decommissioning Fire Safety</u>

TetraTek, Inc. has in-depth experience providing Industrial, Construction and Decontamination and Decommissioning (D&D) Fire Safety support services across the industry utilizing NFPA 241, Standard for Safeguarding Construction, Alteration, and Demolition Operations. TetraTek, Inc. personnel are Technical Committee Members on NFPA 241. This expertise provides the client safeguards for construction, D&D and alteration operations in order to provide reasonable safety, while preventing and minimizing injuries and loss of life; environmental impacts and property from fire and smoke. Fire Safety elements include:

- D&D Fire Safety (NFPA 241)
- Life Safety (NFPA 101 & 101A)
- Adequate Water Supply
- Safeguarding Demolition Operations
- Safeguarding Construction & Alteration Operations Safeguarding Underground Operations
- Safeguarding Roofing Operations
- Fire Protection Systems & Extinguishing Equipment
- Fire Safety Program
- Hot Work Operations
- Emergency Procedures
- Fire Hazards Analysis
- Building Separation Walls
- Combustible Materials Configurations
- Heating Equipment
- Utilities
- Hazardous Operations & Procedures
- Fire Communication systems
- Pre-Incident Plans
- Flammable and Combustible Liquids
- Fire Department
   Access



• U.S. Department of Energy (DOE)

Nuclear Power Plants

Enrichment Facilities

Industrial

U.S. Department of Defense (DOD)

U.S. Nuclear Regulatory Commission (NRC)

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## **Fire Protection and Safety** Engineering **Fire & Explosion Investigations**

As former NFPA Technical Committee members on the original NFPA 921, Guide for Fire and Explosion Investigations, TetraTek Inc. has certification and expertise to provide fire and explosion investigations to determine and establish the fire and/or explosion origin and cause.

Fire & Explosion Investigations (NFPA 921) - A fire or explosion investigation is a complex endeavor involving skill, technology, knowledge, and science. The compilation of factual data, as well as an analysis of those facts, should be accomplished objectively, truthfully, and without expectation bias, preconception, or prejudice.



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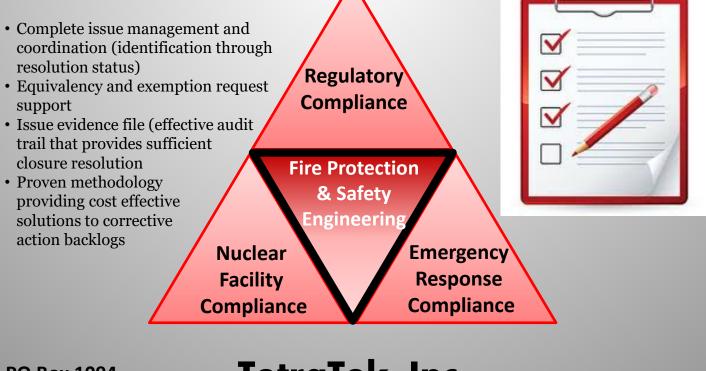
## Fire Protection and Safety Engineering Deficiency Identification & Noncompliance Resolution

TetraTek, Inc. has expertise providing Deficiency Identification and Noncompliance Resolution on facilities and programmatic related issues ensuring the life safety of personnel and that the protection features of the facility adhere to requirements of National Consensus Codes and Standards.

The following proven TetraTek, Inc. methodology will ensure each and every issue entered into the Organizations corrective action system is effectively documented and can be effectively managed through the following:

- **STEP 1:** Identification and/or validation of issue/noncompliance (field walkdowns, research and interviews)
- **STEP 2:** Prioritize and group into disciplines
- **STEP 3:** Effective illustration of issue/noncompliance and coordination with facility managers, maintenance contractors and corrective action coordinators, etc.
- STEP 4: Documented evidence file and code or record
- **STEP 5:** Status resolution

In summary, TetraTek, Inc. can provide Deficiency Identification and Noncompliance Resolution with:



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## TetraTek, Inc.

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## **Regulatory Compliance**

TetraTek, Inc. is extensively involved in the policy-making process in the development of National Consensus Codes and Standards and regulatory requirements throughout the industry.

TetraTek's personnel are well versed interfacing with Regulatory Compliance Enforcement Authorities. TetraTek, Inc. has the expertise to ensure your Fire Protection Programs, processes/ projects and facilities meet regulatory requirements for the following:

- U.S. Department of Energy (DOE)
- U.S. Department of Defense (DOD)
- U.S. Nuclear Regulatory Commission (NRC)
- Universities & Colleges (Academic)
- Occupational Safety & Health Administration (OSHA)
- National Fire Protection Association (NFPA)
- International Fire/Building Codes (IFC and IBC)
- Code of Federal Regulations (CFR)
- National Consensus Codes and Standards Compliance
- Code Analysis
- Fire Protection Programs
- Deficiency Identification & Noncompliance Resolution





Regulatory Compliance

Fire Protection & Safety Engineering Nuclear Emergency

> Response Compliance

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# TetraTek, Inc.

Facility

Compliance

## **Regulatory Compliance** *Fire Protection Programs*

TetraTek, Inc. has in-depth experience evaluating, developing, implementing and managing (if applicable) comprehensive Fire Protection Programs and/or evaluating, revising and updating existing Fire Protection Programs. A compliant Fire Protection Program will meet the fire safety policy objectives of the Organization, Regulator and/or Authority Having Jurisdiction. As NFPA Technical Committee Members, not only does TetraTek, Inc. interpret National Consensus Codes and Standards, we also develop them through the policy making process (we write the codes). The industry standard Fire Protection Program includes:

- Overall Directive and Management Policies
- Conformance to National Consensus Codes and Standards & Regulatory Requirements
- Staff organization, training and responsibilities
- Fire Protection Engineering Analyses and Assessments, including Fire Hazards Analysis
- Design review program
- Inspection, Testing & Maintenance Requirements for Fire Protection Systems and Equipment including Systems Engineering requirements
- Impairment Process and Compensatory Measures
- Emergency Response Compliance
- Pre-Incident Plans
- Fire Prevention Program and Fire Safety Implementing Procedures
  - Organization specific requirements
  - Control of flammable & combustible Regulatory liquids and gases & oxidizers Compliance
  - Control of ignition sources
  - Facility Combustible Loading (CL) Program
  - Administrative controls
  - Documented facility inspections
  - Construction fire safety
- Water supply requirements
- Site specific requirements

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## TetraTek, Inc.

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## Regulatory Compliance <u>Code Analysis</u>

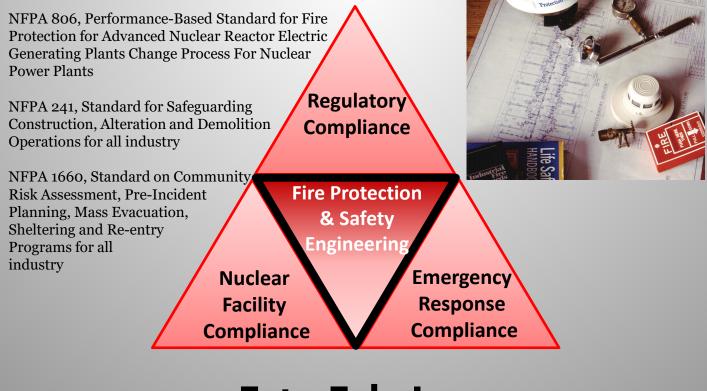
As former regulators, TetraTek, Inc. industry consultants have in-depth experience performing Code Analyses for Facilities, Fire Protection Programs and Processes throughout the industry determining conformance to National Consensus Codes and Standards and Regulatory Requirements. As NFPA Technical Committee Members, not only does TetraTek, Inc. interpret National Consensus Codes and Standards, we also develop them through the policy making process (we write the codes). Additionally, TetraTek, Inc. staff have the knowledge and are successful utilizing alternative approaches and innovative solutions (Code Equivalency Process) to meet the regulatory intent. This Code Equivalency Process is then formulated to meet the objectives of the Organization, Regulator and/or Authority Having Jurisdiction.

As NFPA Technical Committee Members on several pertinent National Consensus Codes and Standards, TetraTek, Inc. interpretations are well received by Organizations, Regulators and Authorities Having Jurisdiction. TetraTek, Inc. personnel are NFPA Technical Committee Members on the following NFPA National Consensus Codes and Standards:

NFPA 801, Standard for Fire Protection for Facilities Handling Radioactive Materials for U.S. DOE Nuclear Facilities and Enrichment Facilities (Fuel Cycle Facilities)

NFPA 805, Performance Based, Standard for Fire Protection for Advanced Light Water Reactor Electric Generating Plants for Nuclear Power Plants as an alternative to 10 CFR 50, Appendix R

NFPA 804, Standard for Fire Protection for Advanced Light Water Reactor Electric Generating Plants for Nuclear Power Plants



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## TetraTek, Inc.

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#### **Regulatory Compliance** <u>Deficiency Identification &</u> <u>Noncompliance Resolution</u>

TetraTek, Inc. has expertise providing Deficiency Identification and Noncompliance Resolution on facilities and programmatic related issues ensuring the life safety of personnel and that the protection features of the facility adhere to requirements of National Consensus Codes and Standards.

The following proven TetraTek, Inc. methodology will ensure each and every issue entered into the Organizations corrective action system is effectively documented and can be effectively managed through the following:

- **STEP 1:** Identification and/or validation of issue/noncompliance (field walkdowns, research and interviews)
- **STEP 2:** Prioritize and group into disciplines
- **STEP 3:** Effective illustration of issue/noncompliance and coordination with facility managers, maintenance contractors and corrective action coordinators, etc.
- STEP 4: Documented evidence file and code or record
- **STEP 5:** Status resolution

In summary, TetraTek, Inc. can provide Deficiency Identification and Noncompliance Resolution with:



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# TetraTek, Inc.

## **Nuclear Facility Compliance**

TetraTek, Inc. has in-depth experience with Nuclear Facility Compliance support services throughout the DOE Complex, Nuclear Power and Enrichment Fuel Cycle industries.

With hands-on experience and our policy-making process in the development of National Consensus Codes and Standards (Technical Committee members on the NFPA Nuclear Facility Codes), TetraTek, Inc. has the expertise to implement and manage compliant Nuclear Fire Protection Programs and Projects.

To include the following:

- U.S. Department of Energy (DOE)
- U.S. Department of Defense (DOD)
- U.S. Nuclear Regulatory Commission (NRC)
- Nuclear Power Plants
- Enrichment Facilities
- Processing/Manufacturing
- Health Care
- Licensing Support
- NFPA 801 Implementation
- NFPA 805 (alternative to 10 CFR 50, Appendix R) Implementation
- NFPA 804 & NFPA 806 Compliance
- Fire Protection Engineering Analyses & Assessments

Regulatory Compliance Fire Protection

& Safety Engineering

> Emergency Response

Compliance

Nuclear Facility Compliance





- Fire Protection Programs
- Decontamination & Decommissioning Fire Safety (NFPA 241)
- Special Nuclear Hazards Facilities

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## TetraTek, Inc.

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## Nuclear Facility Compliance <u>Fire Protection Programs</u>

TetraTek, Inc. has in-depth experience evaluating, developing, implementing and managing (if applicable) comprehensive Fire Protection Programs and/or evaluating, revising and updating existing Fire Protection Programs. A compliant Fire Protection Program will meet the fire safety policy objectives of the Organization, Regulator and/or Authority Having Jurisdiction. As NFPA Technical Committee Members, not only does TetraTek, Inc. interpret National Consensus Codes and Standards, we also develop them through the policy making process (we write the codes). The industry standard Fire Protection Program includes:

- Overall Directive and Management Policies
- Conformance to National Consensus Codes and Standards & Regulatory Requirements
- Staff organization, training and responsibilities
- Fire Protection Engineering Analyses and Assessments, including Fire Hazards Analysis
- Design review program
- Inspection, Testing & Maintenance requirements for fire protection systems and equipment including systems engineering requirements
- Impairment Process and Compensatory Measures
- Emergency Response Compliance
- Pre-Incident Plans
- Fire Prevention Program and Fire Safety Implementing Procedures
  - o Organization specific requirements
  - Control of flammable and combustible liquids and gases and oxidizers
  - Control of ignition sources
  - Facility Combustible Loading (CL) Program
  - Administrative controls
  - Documented facility inspections
  - $\circ~$  Construction fire safety
- Water supply requirements
- Site specific requirements

Regulatory Compliance

Fire Protection & Safety Engineering

Emergency

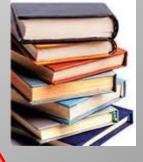
Response

Compliance

Nuclear Facility Compliance







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## TetraTek, Inc.

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## Nuclear Facility Compliance <u>Fire Protection Licensing Support &</u> <u>NFPA Implementation</u>

TetraTek, Inc. has in-depth experience supporting licensing and regulatory compliance activities and implementing NFPA Nuclear Facility Codes in the areas of fire protection and emergency management for nuclear facilities. Through the licensing process, the U.S. Nuclear Regulatory Commission (NRC) authorizes an applicant to conduct activities in support of their licensing. TetraTek, Inc. can provide support pertaining to fire protection and emergency management of the following:

- Construct, operate, and decommission commercial reactors and fuel cycle facilities
- Possess, use, process, export and import nuclear materials and waste, and handle certain aspects of their transportation
- · Site, design, construct, operate, and close waste disposal sites

As NFPA Technical Committee Members on the Nuclear Facility Codes, TetraTek, Inc. has the expertise to implement NFPA 801, 804, 805 & 806 Codes and Standards within the nuclear industry.

NFPA 801, Standard for Fire Protection for Facilities Handling Radioactive Materials for U.S. DOE Nuclear Facilities and Enrichment Facilities (Fuel Cycle Facilities)

NFPA 805, Performance Based, Standard for Fire Protection for Advanced Light Water Reactor Electric Generating Plants for Nuclear Power Plants as an alternative to 10 CFR 50, Appendix R





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## TetraTek, Inc.

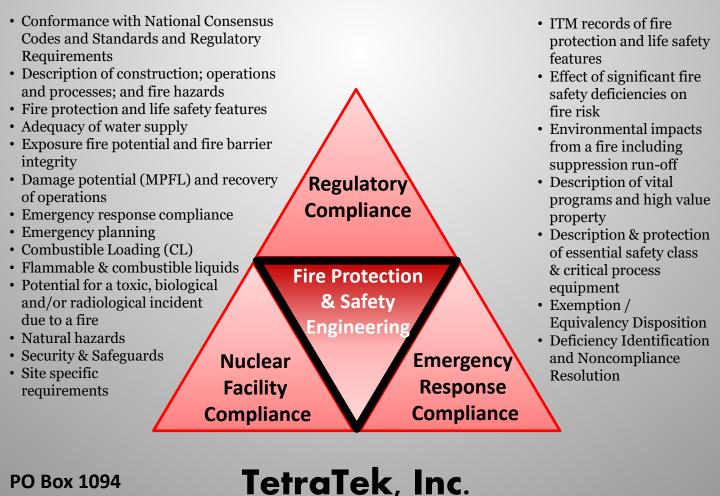
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## **Nuclear Facility Compliance Fire Hazards Analysis**

TetraTek, Inc. has in-depth experience performing Fire Hazards Analysis (FHA ) on nuclear facilities.

The purpose of a FHA is to comprehensively and qualitatively assess the risk from fire within individual fire areas in a facility to ascertain whether the Organization, Regulator and/or the Authority Having Jurisdiction fire safety objectives are met. This includes an assessment of the risk from fire and related hazards in relation to existing or proposed fire protection and life safety features to ensure that the facility can be safely controlled and stabilized during and after a fire. The level of detail necessary for an acceptable FHA is directly related to the complexity of the facility and the potential risk to facility occupants, public and the potential impact to the environment.

The general approach taken to complete this analysis involves the identification of the fire risks associated with existing or proposed operations and the fire protection and life safety features required to mitigate the adverse consequences from fire and smoke. Major elements analyzed include:



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## **Nuclear Facility Compliance Decontamination & Decommissioning** Fire Safety (NFPA 241)

TetraTek, Inc. has in-depth experience providing Decontamination and Decommissioning (D&D) Fire Safety support services across the industry utilizing NFPA 241, Standard for Safeguarding Construction, Alteration, and Demolition Operations. TetraTek, Inc. personnel are Technical Committee Members on NFPA 241. This expertise provides the client safeguards for construction, D&D and alteration operations in order to provide reasonable safety, while preventing and minimizing injuries and loss of life; environmental impacts and property from fire and smoke. Fire Safety elements included:

- D&D Fire Safety (NFPA 241) • Life Safety (NFPA 101 & 101A) • Adequate Water Supply Safeguarding Demolition Operations • Safeguarding Construction & Alteration Operations Safeguarding Underground Operations Safeguarding Roofing Operations Fire Protection Systems & Extinguishing Equipment • Fire Safety Program Hot Work Operations Emergency Procedures • Fire Hazards Analysis • Building Separation Walls Combustible Materials Configurations Heating Equipment Regulatory Utilities Hazardous Operations & Compliance **Procedures** • Fire Communication systems
  - U.S. Department of Energy (DOE)
  - U.S. Department of Defense (DOD)
  - U.S. Nuclear Regulatory Commission (NRC)
  - Nuclear Power Plants
  - Enrichment Facilities



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## TetraTek, Inc.

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## **Nuclear Facility Compliance Code Analysis**

As former regulators, TetraTek, Inc. industry consultants have in-depth experience performing Code Analyses for Facilities, Fire Protection Programs and Processes throughout the industry determining conformance to National Consensus Codes and Standards and Regulatory Requirements. As NFPA Technical Committee Members, not only does TetraTek, Inc. interpret National Consensus Codes and Standards, we also develop them through the policy making process (we write the codes). Additionally, TetraTek, Inc. staff have the knowledge and are successful utilizing alternative approaches and innovative solutions (Code Equivalency Process) to meet the regulatory intent. This Code Equivalency Process is then formulated to meet the objectives of the Organization, Regulator and/or Authority Having Jurisdiction.

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NFPA 804, Standard for Fire Protection for Advanced Light Water Reactor Electric Generating Plants for Nuclear Power Plants



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#### Nuclear Facility Compliance <u>Deficiency Identification &</u> <u>Noncompliance Resolution</u>

TetraTek, Inc. has expertise providing Deficiency Identification and Noncompliance Resolution on facilities and programmatic related issues ensuring the life safety of personnel and that the protection features of the facility adhere to requirements of National Consensus Codes and Standards.

The following proven TetraTek, Inc. methodology will ensure each and every issue entered into the Organizations corrective action system is effectively documented and can be effectively managed through the following:

- **STEP 1:** Identification and/or validation of issue/noncompliance (field walkdowns, research and interviews)
- **STEP 2:** Prioritize and group into disciplines
- **STEP 3:** Effective illustration of issue/noncompliance and coordination with facility managers, maintenance contractors and corrective action coordinators, etc.
- STEP 4: Documented evidence file and code or record
- **STEP 5:** Status resolution

In summary, TetraTek, Inc. can provide Deficiency Identification and Noncompliance Resolution with:



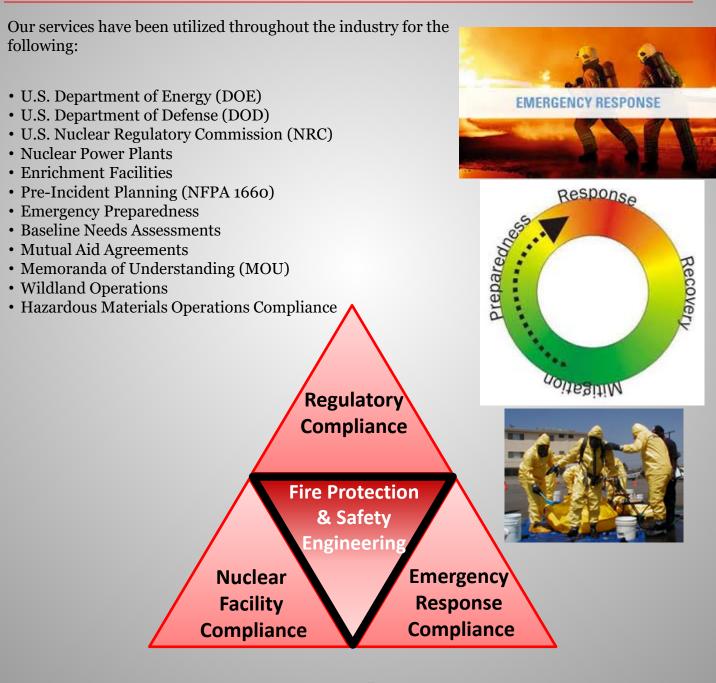
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## TetraTek, Inc.

## **Emergency Response Compliance**

TetraTek, Inc. has extensive expertise in Emergency Response Operations with Federal, State, City and County and Fire Department & Emergency Response entities.

#### As former chief officers with City and Government Fire Departments our Emergency Response Operations support services help prepare, respond, mitigate and recover, while maintaining a state of compliant readiness.



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## TetraTek, Inc.

#### Emergency Response Compliance <u>Emergency Preparedness</u> <u>Mutual Aid Agreements/MOUs</u>

TetraTek, Inc. personnel have expertise in emergency response operations throughout the industry as former Chief Officers (fire departments, fire brigades and emergency response organizations).

**Emergency Preparedness** 

- Emergency response compliance
- Pre-Incident Planning (NFPA 1660)
- Fire Department Baseline Needs Assessment
- Facility fire safety

Mutual Aid Agreements/ Memoranda of Understanding (MOU)

- Identify responding parameters
- Perform Baseline Needs Assessment of potential responding organization(s)
- Determine adequacy, effectiveness and readiness
- Develop and establish comprehensive agreements and MOUs







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## Emergency Response Compliance <u>Pre-Incident Planning</u>

TetraTek's Pre-Incident Planning (PIP) process evaluates the protection, construction, and operational features of specific occupancies. The PIPs will help ensure responding emergency response personnel can effectively manage emergency incidents with available resources.

Pre-incident planning is a total concept based upon the following guidelines: issue awareness, management commitment, education, prevention, protection, and emergency organization. A thorough PIP involves information gathering, analysis, and dissemination; applying the "what-if-approach"; and planning, reviewing, training, and evaluating. With Principle Committee members serving on NFPA 1660, Pre-Incident Planning, TetraTek, Inc. will ensure the latest guidelines are incorporated into each PIP.

The following elements are examples of data that are contained in TetraTek's PIPs:

- Incident Management System
- Detailed response drawings
- Response and staging information
- Water supply Configuration
- Construction characteristics
- Description of contents
- Occupant characteristics (life safety considerations)

- Special operations, processes and hazards
- Protection systems
- Exposure factors
- Capabilities of public or industrial responding personnel
- Fire fighting recommendations
- Mutual aid agreements/ Memoranda of Understanding (MOU)



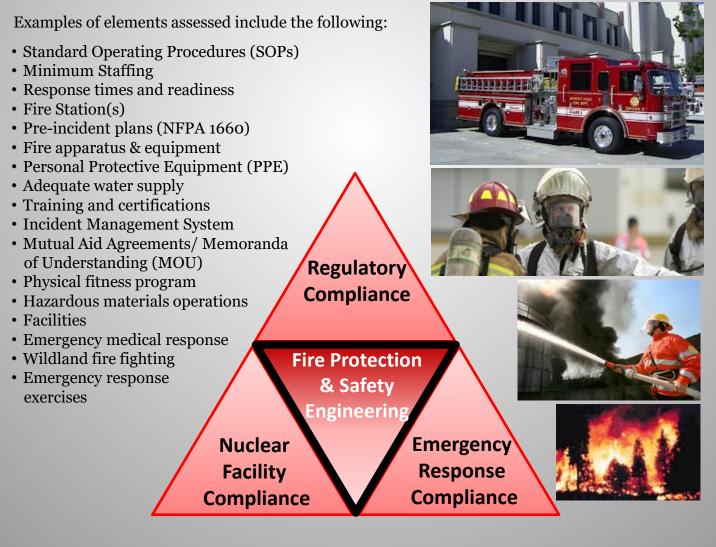
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# TetraTek, Inc.

#### Emergency Response Compliance <u>Fire Department Baseline Needs</u> <u>Assessment</u>

TetraTek, Inc. has in-depth experience performing Baseline Needs Assessments (BNA) throughout the industry. The Fire Department BNA comprehensively assesses the readiness and response capabilities of the Fire Department and their ability to mitigate the worst-case scenario. This assessment establishes and/or reestablishes the minimum required capabilities of fire fighting forces. The purpose of this assessment is to validate:

- 1) A formalized and documented Fire Department/Emergency Response Program has been developed in accordance with applicable NFPA standards (i.e. NFPA 600, 1500, 1710).
- 2) That standard operating procedures are being implemented.
- 3) That procedures are complete and they identify responsibilities of all Fire Department activities, inclusive of fire suppression and fire prevention activities.

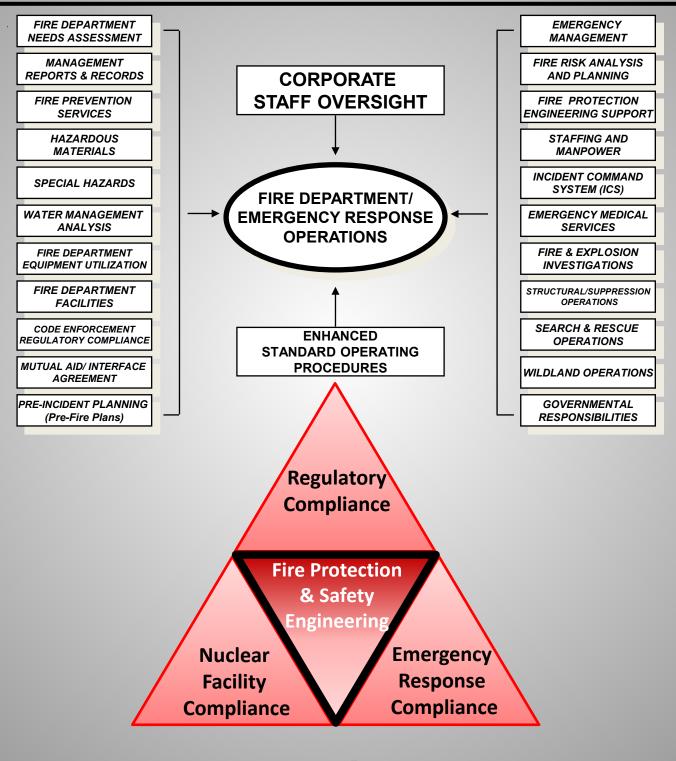


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#### **Emergency Response Compliance** <u>Fire Department / Emergency Response</u> <u>Operations</u>



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