Enclosure 6 – Inspection Record

Region I Inspection Report No. 2014-001 License No. 29-31396-01
Docket No. 03038199

Licensee (Name and Address): Tetra Tech EC, Inc.
1000 The American Way
Morris Plains, New Jersey 07950

Location Being Inspected: Hunters Point Naval Shipyard (HPNS), San Francisco, California

Licensee Contact: Erik Abkemeier, RSO Telephone No.:

Priority: 3 Program Code: 3219

Date of Last Inspection: January 30, 2012 Date of This Inspection: April 7-8, 2014

Type of Inspection: ( ) Initial (X) Announced ( ) Unannounced
(X) Routine ( ) Special

Next Inspection Date: February 23, 2014 Note: This inspection was not a complete inspection of Tetra Tech's licensed activities. MC 2800 allows the inspection of licensees to vary around their due date by 25 percent. The complete Tetra Tech inspection must be completed by November 2014.

Summary of Findings and Actions:
(X) No violations cited, clear NRC Form 591 or regional letter issued
( ) Non-cited violations (NCVs)
( ) Violation(s), Form 591 issued
( ) Violation(s), regional letter issued
( ) Follow-up on previous violations

Inspector: Orysia Masnyk Bailey
/RA M. C. Roberts for/ Date May 7, 2014

(Signature)

Approved Marc S. Ferdas

/RA M. C. Roberts for/ Date May 7, 2014
(Signature)

[x] Public [X] Non-Sensitive

PART I-LICENSE, INSPECTION, INCIDENT/EVENT, AND ENFORCEMENT HISTORY

1. AMENDMENTS AND PROGRAM CHANGES:

N/A

2. INSPECTION AND ENFORCEMENT HISTORY:

In March 2011 and January 2012 the NRC performed inspections of Tetra Tech EC at the Hunters Point Naval Shipyard (HPNS) that included a review of ongoing radiation safety practices in Parcel C. These inspections identified one non-cited violation dealing with the failure to secure a low activity radioactive check source.

3. INCIDENT/EVENT HISTORY:

N/A

PART II - INSPECTION DOCUMENTATION

1. BACKGROUND, ORGANIZATION, AND SCOPE OF PROGRAM:

The Hunters Point Naval Shipyard (HPNS) is undergoing remediation under the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA). Although the HPNS is a formerly NRC-licensed site, the lead federal regulatory authority under CERCLA is the Federal Environmental Protection Agency. Under the CERCLA process at the HPNS, NRC does not regulate release criteria or approve decommissioning procedures.

On August 6, 2009, the NRC published a Notice of jurisdiction and future involvement in the Federal Register, advising that the NRC would take a limited involvement approach regarding the Navy's ongoing remediation at the HPNS. The Navy hired contractors to decommission HPNS. Tetra Tech EC, Inc. maintains an NRC materials service provider license and is one of the contractors working at HPNS. Due to a variety of jurisdictional issues, the NRC has regulatory jurisdiction over contractor activities in the northeast portion of the HPNS and the State of California, an Agreement State, has regulatory jurisdiction in the southwest portion of the HPNS.

Tetra Tech EC's client is the Naval Facilities Engineering Command (NAVFAC) under the Base Relocation and Closure (BRAC) program with technical assistance provided by the Radiological Affairs Support Office (RASO), a part of the Navy's NRC Master Materials License (MML). The State agencies include the California Department of Toxic Substance Control (DTSC) and the Department of Public Health (DPH). The DTSC is the State Environmental Protection Agency organization. DPH staff from the Environmental Management Branch also provides radiological assistance to DTSC. The Radiological Health Branch, within the DPH, is the NRC Agreement State entity.

Tetra Tech EC is an NRC materials service provider licensee authorized to receive, store, use, and/or possess radioactive material incident to decommissioning, packaging, and transport. The main radionuclides of concern at the HPNS are Ra-226, Sr-90, and Cs-137. The Tetra Tech EC organization at the HPNS consists of a senior project manager, a site Radiation Safety Officer Representative, and five additional authorized users with twelve radiation control technicians (RCTs). They are assisted by laborers who receive radiation safety training and work under the supervision of the RCTs. The majority of work involves soil remediation, with excavated soil being moved to sampling pads. Work hours are from 7:00 am until 4:00 pm, except that the on-site laboratory also has a "second" shift. The Project Manager frequently visits the site and the RSOR or an Authorized User is always available during work hours to ensure proper oversight of the remediation work.

2. SCOPE OF INSPECTION:

Inspection Procedure Used: 87104 "Decommissioning Inspection Procedure for Materials Licensees"

Records reviewed:

- Final Basewide Radiological Management Plan dated February 3, 2012
- The Final Execution Plan, November 2012 for Parcel C Phase II, Radiological Remediation and Support, Hunters Point Navy Shipyard, San Francisco, California under number DCN: RMAC-0809-0012-0007
- The Final Design Plan, November 2012 Parcel C Phase II Radiological Remediation and Support, Hunters Point Naval Shipyard, San Francisco, California" under number DCN: RMAC-0809-0012-0006
- FINAL WORK PLAN, Parcel C Remedial Action, Remedial Units C1, C4, and C5, and Building 241 (Excludes C2), Hunters Point Shipyard, San Francisco, California under number DCN: SHAW-0807-0008-0207.R1
- Standard Operating Procedure, HPO-Tt-021, Gamma Screening of Trucks Using the Stationary Portal Monitor", DCN:ECSD-RAC-05-1230
- Ludlum Model 3500-1000, Radiation Detector System Operators Manual
- Various utilization logs, source check records, survey records, entry/exit logs, etc.

The HPNS is divided into parcels that are further broken down into survey units, to allow for a systematic method to remediate the property. The inspector reviewed procedures and records, interviewed site personnel, and observed work activities within Parcel C at HPNS. The inspection focused on the radiological safety programs and practices being implemented by Tetra Tech associated with the handling and remediation of potentially contaminated soil. The time frame reviewed was from October 2011 to April 7, 2014.

3. Observations

The Final Basewide Radiological Management Plan describes the radiological remediation at the HPNS. Specific work plans are developed based on work activities and locations using criteria contained in this Radiological Management Plan. From October 2011 until June 2012, the time frame for the outdoor radiological remediation within Parcel C, Tetra Tech EC performed radiological remediation using two procedures:

- "The Final Execution Plan, November 2012 for Parcel C Phase II, Radiological Remediation and Support, Hunters Point Navy Shipyard, San Francisco, California" under number DCN: RMAC-0809-0012-0007, and
- "The Final Design Plan, November 2012 Parcel C Phase II Radiological Remediation and Support, Hunters Point Naval Shipyard, San Francisco, California" under number DCN: RMAC-0809-0012-0006.

From August 2013 until February 2014, the decontamination efforts being conducted were chemical remediation of Parcel C at the HPNS. The inspector observed the parcel on April 7 and 8, 2014 and noted that this parcel is located adjacent to Building 253, which is undergoing a characterization study to determine the radioactive contaminants inside the building.

Based on discussions with Tetra Tech EC personnel, the inspector was informed that sewer lines and the soil surrounding these lines were removed from Parcel C and taken to the radiological screening yard pads for processing. The resulting trenches were backfilled with clean fill as a safety practice and to prevent the trenches from filling with water. During these activities, Parcel C was posted as a radiation area with access to the parcel limited to only authorized individuals. All personnel and materials leaving the parcel were surveyed for radioactive contamination. When radiologically impacted work was completed, the access control requirements and postings were removed.

Potentially radioactive contaminated soil is taken to the radiological screening yard pads at the HPNS site where the soil is spread into six-inch thick layers. The soil is then surveyed for gamma radiation using a large

towed sodium iodide array trailer. Based on the survey results, random and biased soil samples are taken and analyzed for radioactive contamination. Contaminated soil is segregated from the rest of the soil and disposed as low level radioactive waste. The remaining "clean" soil is piled at various locations, outside of the radiologically controlled areas at the site and can be used as fill dirt when needed. No material is released from the HPNS unless the Navy and the State of California have reviewed the work performed and the survey results. The DTSC has confirmatory surveys performed by an independent contractor to verify and validate the survey results. Staff from RASO also observed work activities periodically, and a percentage of soil samples were "split" and sent to an off-site laboratory as a quality control measure.

The inspector was advised that chemical remediation was performed in Parcel C from August 2013 until February 2014. Work was done under the FINAL WORK PLAN, Parcel C Remedial Action, Remedial Units C1, C4, and C5, and Building 241 (Excludes C2), Hunters Point Naval Shipyard, San Francisco, California under DCN: SHAW-0807-0008-0207.R1. Since the radiation remediation was completed, there were no radiologic controls or oversight needed and the workers did not require radiological monitoring or training since they were not exposed to radiological hazards. Piping associated with the potentially contaminated Building 253 had been removed from Parcel C during radiological remediation and there was no access into the building from within the chemical work area. As a part of the chemical remediation, soil was mounded within Parcel C for later movement, and the trenches that resulted during the work were again back filled with clean soil. Although the work involved chemical remediation, the work plan used contained a section on radiological health and safety so that workers would recognize posted radiation signs in adjacent areas and be aware of any radiation hazards at the HPNS. Additionally, area radiation monitors and air sampling devices were in use around the HPNS, and dust abatement practices were in effect.

The inspector determined that Tetra Tech EC, the lead contractor at the HPNS, tracked all soil storage piles at the HPNS and was aware of their chemical, radiological, and remediated status. Soil that was found to be chemically or radiologically impacted was disposed at appropriately licensed facilities. Soil was handled per site procedures and soil to be sampled at the radiological screening yards was not "diluted or homogenized" with clean soil prior to being surveyed. Contractors were not encouraged to limit the amount of soil generated.

For material entering and leaving the HPNS, Tetra Tech EC implemented the use of a portal radiation monitor at the HPNS. The inspector found that the monitor was properly installed, calibrated, daily source checked, and operated in accordance with Tetra Tech EC's "Standard Operating Procedure, HPO-Tt-021, Gamma Screening of Trucks Using the Stationary Portal Monitor", DCN:ECSD-RAC-05-1230, as required by Section 4.1.8 of the Basewide Radiological Work Plan. The portal monitor is a Ludlum Model 3500-1000RMW portal monitor and is set to alarm at approximately 15 microRem per hour, not to exceed 8.5 deviations above background. Although the monitor comes from the factory set at 6 deviations above background, Tetra Tech EC worked with the Navy to set the alarm point a little higher to decrease the number of false alarms. The shipping company uses a lot of aluminum walled trucks that cause false alarms. The current set point is well below the State of California release limits for unrestricted use. If the truck sets off the portal monitor, the truck's contents are scanned by hand using a portable 2X2 sodium iodide detector. Incoming trucks also pass through the portal monitor. The monitor is used to detect elevated radiation levels and alarms to prevent the entry or exit of possibly contaminated materials. Only soil that was generated as a result of chemical remediation in Parcel C was shipped off-site, and it was surveyed prior to release and also passed through the portal monitor. Soil sampling results from the radiological remediation are still under review, and the associated soil is still on-site.

Based on a review of records and procedures and discussion with site personnel, the inspector concluded that Tetra Tech EC had implemented site-specific radiation control procedures, with good procedure adherence demonstrated. Radiation workers and laborers were trained to perform their duties before beginning work and received annual refresher training. Daily safety/radiation briefings were held before beginning of work every morning. Dosimetry was issued to all employees entering the radiation controlled areas and was exchanged monthly. All exposures were substantially less than the NRC occupational annual whole body dose limits. Survey instruments were appropriate for site conditions and calibrated in accordance with manufacturer's recommendations. All radiological postings were as required. Radiation workers observed in the performance of their duties appeared knowledgeable of their responsibilities and work requirements.

In summary, the NRC concluded that Tetra Tech EC, Inc. trained workers in radiation safety practices, used proper dosimetry to monitor exposures as necessary, and has a radiation safety staff available on site for oversight of the remediation work.

4. INDEPENDENT AND CONFIRMATORY MEASUREMENTS:

On March 12, 2014, an inspector from the California Department of Public Health obtained soil samples from HPNS. The samples were "split" and independently analyzed by the Navy. Composite soil samples were taken from soil piles 2, 3, 4, and 7 in Parcel C. This was soil from the chemical remediation in Parcel C scheduled to be transported to a facility that accepts chemically impacted soil. The NRC inspector reviewed the results and noted that the soil analysis demonstrated that no radiological contamination was present.

5. VIOLATIONS, NCVs, AND OTHER SAFETY ISSUES:

No violations were identified.

6. PERSONNEL CONTACTED:

Tetra Tech EC, Inc.
#* Erik Abkemeier, Corporate Radiation Safety Officer
#* Bill Dougherty, Hunters Point Project Manager
Various Authorized Users and Radiation Control Technicians

California Department of Public Health
#* Gene Forrer, Inspector

Individual(s) present at entrance meeting
* Individual(s) present at exit meeting

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