Forensic Audit
Technical Memorandum

September 7, 2019

Keller Canyon Landfill
Pittsburg, CA

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# TABLE OF CONTENTS

1.0 Introduction and Background ...................................................................................................... 1
  1.1 Site Description .......................................................................................................................... 2
    1.1.1 Keller Canyon Landfill .............................................................................................. 2
    1.1.2 Former Hunters Point Naval Shipyard ..................................................................... 2
  1.2 Background of Fraudulent Activities .......................................................................................... 3

2.0 Forensic Audit ............................................................................................................................... 3
  2.1 Exhibits .................................................................................................................................. 4
  2.2 Review of Documents and Logs ........................................................................................... 4
  2.3 Site Visits .............................................................................................................................. 5
    2.3.1 Former Hunters Point ............................................................................................... 5
    2.3.2 Keller Canyon Landfill .............................................................................................. 5

3.0 Findings ......................................................................................................................................... 5

4.0 Conclusions and Recommendations ............................................................................................... 6

5.0 Proposed Sampling Scope ............................................................................................................... 6

6.0 References ......................................................................................................................................... 6

TABLES ..................................................................................................................................................... 8
TABLES

Table 1: Forensic Audit Tracking Log

APPENDICES

Appendix A: List of Special Wastes
<table>
<thead>
<tr>
<th>ACRONYM LIST</th>
</tr>
</thead>
<tbody>
<tr>
<td>BRAC</td>
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<td>CA</td>
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<td>EHD</td>
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<td>EPA</td>
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<td>Hunters Point</td>
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<td>HRA</td>
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<td>IOC</td>
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<td>IR</td>
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<td>Keller Canyon</td>
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<td>LUP</td>
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<td>RFP</td>
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<td>RSY</td>
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<td>SOP</td>
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<td>Tetra Tech</td>
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<td>USGS</td>
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EXECUTIVE SUMMARY

This Technical Memorandum summarizes the results of a forensic audit initiated per request of the Contra Costa Environmental Health to evaluate the potential for the unauthorized disposal of radioactive waste at Keller Canyon Landfill originating from the former Hunters Point Shipyard. This Memorandum is intended to be a “live” document that includes data summaries and recommendations for additional inquiry; as such, it can be updated as additional data are accumulated.

An April 22, 2018 San Francisco Chronicle news story raised concerns about intentional misclassification of low-level radioactive waste and its potential shipment to several local landfills, including Keller Canyon Landfill (Keller Canyon). In response to these concerns, Contra Costa Environmental Health, the Contra Costa County Board of Supervisors, and the City of Pittsburg took several steps. On May 1, 2018, the Contra Costa Board of Supervisors approved the hiring of an independent contractor to assist the county in determining if low-level radioactive waste was disposed of at Keller Canyon. On May 15, 2018, the county convened an agency/stakeholder workgroup to provide a scope of services for an investigation by an independent consultant. A community meeting was held on June 21, 2018 in order to:

- Provide background information about the Hunters Point remediation project
- Present an overview of the current radiological data
- Present an overview of the disposal processes at both Hunters Point and Keller Canyon
- Document community health concerns

The County issued a Request for Qualifications (RFQ) and reviewed several contractor submittals before selecting a team led by TRC Solutions Inc. (TRC) to conduct an independent forensic audit of documents from Hunters Point and Keller Canyon and to make a determination of the need for sampling. The TRC team included a radiation health physicist, landfill experts, geologists, a geophysicist, and an occupational medicine physician.

The TRC Team presents the findings of the forensic audit of available documents and data in order to answer the basic project question: **Is it possible that soil destined for the Keller Canyon Landfill originating from the Former Hunters Point Naval Shipyard could have had some composition of radioactive materials that avoided detection?**

The forensic audit began in October 2018 and concluded in May 2019. Documents reviewed included special waste authorizations, soil analytical data reports, Hunters Point work plans and reports, Standard Operating Procedures (SOPs), portal monitor calibration records, and landfill data in response to database queries for material loads. We evaluated data that supported or reduced the certainty that radiologically contaminated materials were received at Keller Canyon from Hunters Point.

Based on the review of available documents, it is our collective professional judgement that it is very unlikely that radiologically contaminated materials from Former Hunters Point Naval Shipyards operations were disposed of at Keller Canyon. However, limited environmental field sampling should be performed at Keller Canyon to provide additional certainty that radiologically contaminated materials were not disposed of at Keller Canyon.
1.0 Introduction and Background

An April 22, 2018 San Francisco Chronicle news story raised concerns about intentional misclassification of low-level radioactive waste and its potential shipment to several local landfills, including Keller Canyon Landfill (Keller Canyon). In response to these concerns, Contra Costa Environmental Health, the Contra Costa County Board of Supervisors, and the City of Pittsburg took several steps. On May 1, 2018, the Contra Costa Board of Supervisors approved the hiring of an independent contractor to assist the county in determining if low-level radioactive waste was disposed of at Keller Canyon. On May 15, 2018, the county convened an agency/stakeholder workgroup to provide a scope of services for an investigation by an independent consultant. A community meeting was held on June 21, 2018 in order to:

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Figure 1. Project Timeline (2018 – 2019)

The findings and conclusions are outlined in the following sections:

- Section 1 – Project introduction, site descriptions, and background of fraudulent activities at Hunters Point
- Section 2 – Consulting procedures, processes, and list of documents and data reviewed
- Section 3 – Findings
1.1 Site Description

1.1.1 Keller Canyon Landfill

Republic Services, Inc. operates the Keller Canyon Landfill (Keller Canyon Landfill or KCL), a Class II sanitary landfill, which means it accepts “designated” and nonhazardous wastes. For examples of designated waste, see Appendix A. This contrasts with Class III landfills, which only accept nonhazardous (municipal) waste, and Class I landfills, which may accept hazardous and nonhazardous wastes. Only specifically designated disposal facilities are allowed to accept low-level radioactive waste that is not naturally occurring, and none of them are located in Contra Costa County.

Keller Canyon Landfill is located in Contra Costa County on Bailey Road approximately one-half mile south of Highway 4. The landfill is situated on more than 2,000 acres with primary infrastructure including the landfill administration offices, maintenance facility, leachate and water storage, gas to energy power plant, landfill gas control facilities, and stormwater management facilities. Landfilling activities occur on 244 acres of this area with the remainder serving as buffer or facilities management space. The facility currently accepts approximately 3,500 tons of material per day for disposal from various jurisdictions within the San Francisco Bay Area. Other materials such as clean soil, yard waste, wood waste and beneficial re-use items such as concrete and asphalt are accepted as well. The projected viability of the Keller Canyon Landfill is approximately 50 years from the beginning of operations in October 1992. Currently, a maximum of 320 vehicle in-bound trips per day are permitted at the facility. Access to the facility is via Bailey Road south from Highway 4 in Pittsburg with operating hours of 7:00 a.m. to 4:00 p.m. on weekdays and 7:00 to 1:30 p.m. on Saturdays. The facility is closed on Sundays.

1.1.2 Former Hunters Point Naval Shipyard

Hunters Point was founded as a commercial dry dock in 1869 and owned by private companies before the United States Navy purchased it in 1939. From 1945 to 1974, the Navy predominantly used the shipyard as a repair facility and was also partially occupied by the Naval Radiological Defense Laboratory (NRDL) from 1948 to 1969. In 1974, the Navy ceased shipyard operations and the site was elected for closure as part of the 1991 Base Realignment and Closure (BRAC) process and eventually closed in 1994.

The potential radiologically impacted sites identified in the Historical Radiological Assessment (HRA) (NAVSEA 2004) and included in this evaluation are located within specific land parcels and utility corridors at Hunters Point. Radiological data collection and removal actions were previously conducted by contractors at these parcels (Parcels A, B, C, D, E, F, and G) in accordance with plans approved by the Department of the Navy (Navy) and applicable regulatory agencies based on the HRA (NAVSEA 2004) and release criteria documented in the Navy’s Action Memorandum (Navy 2006). Recommendations followed for remediation of radiologically impacted areas based on former operations and activities performed at Hunters Point (e.g., decontamination of ships that participated in atomic weapons testing and activities at the NRDL). Areas with low-level radioactive contaminants addressed through radiologic removal actions by Tetra Tech included storm drains and sanitary sewer lines, associated surrounding soil, and soil associated with current and former building sites.
1.2 Background of Fraudulent Activities

In October 2012, a Navy official with the Radiological Affairs Support Office (RASO) identified a discrepancy associated with systematic soil sampling data from a Survey Unit within a former building footprint suggesting it may have been collected from a different location than presented in the final report (Tetra Tech 2014). These data were collected by Tetra Tech EC, Inc. (Tetra Tech), the contractor in charge of the remedial activities at the Former Hunters Point during that time. Tetra Tech responded to the RASO inquiry by conducting an investigation from 2012 to 2013 to determine the source of the identified data discrepancy. A report was issued documenting Tetra Tech’s investigation regarding the discrepancy and was reviewed and commented on by the Navy; the report was concluded in April 2014, and corrective actions were identified and implemented (Tetra Tech, 2014).

Additional claims of misrepresentation of data were made by former Tetra Tech workers. In response, the Navy performed a review and assessment of historical radiological data collected by Tetra Tech at the Former Hunters Point and recommended conducting follow-up site assessment and soil sampling activities at the Former Hunters Point (Navy 2017). Because the Navy could not provide assurance that the evaluation identified every instance of data manipulation or falsification, it was also recommended that the Navy and regulatory agencies work collaboratively to initiate a sample collection program to confirm that remedial activities provided the necessary and intended protection of human health and the environment (Navy 2017).

There were also suggestions that soil/material sent off-site may have been misrepresented. Some of this material may have been sent to local landfills, including Keller Canyon, which reportedly accepted soil/material from Hunters Point from October 2009 through November 2017 (Republic Services, 2019).

As a Class II landfill, Keller Canyon is authorized to accept non-hazardous solid wastes, and is prohibited from accepting and disposing of radioactive material. Keller Canyon utilizes radiation detection monitors for incoming waste loads to prevent inadvertent acceptance of shipments containing radioactive material. Nearby residents living in the City of Pittsburg and Bay Point have documented their concerns about the implications of potentially misrepresented data and the associated potential disposal of radioactive waste at Keller Canyon originating from Hunters Point.

2.0 Forensic Audit

The following sections summarize forensic audit activities conducted from October 2018 to May 2019. The audit began with receipt of background reports detailing the radiological investigation at the Former Hunters Point, including review of work plans and Standard Operating Procedures (SOPs) that were used during the investigations at Hunters Point. Also reviewed as part of the Audit was the assessment of anomalous soil samples associated with the misrepresentation of data and Special Waste profiles for soil received at Keller Canyon. Following the initial review of documents provided by the County, a Request for Information (RFI) was submitted to the Navy BRAC and Keller Canyon in November 2018 for additional laboratory reports, field logs, calibration logs, bills of lading/truck tickets, and clarifications on Special Waste Authorizations for soil profiles.

After receipt of information from the Navy BRAC and Keller Canyon, authorization for site visits was requested. These visits were scheduled in order to obtain final clarification of documents, review onsite logs, observe current routine site activities, and to discuss the forensic audit objectives and goals. A site visit was performed at Hunters Point on April 16, 2019 and at Keller Canyon on April 17, 2019. Final requests regarding Special Waste Authorizations from Keller Canyon were requested as the final action item following the visit to Keller Canyon.
2.1 Exhibits

At the start of the audit, a list of documents and logs associated with soil tracking was categorized based on where the documents were generated during the soil removal and disposal activities. Table 1 summarizes the list of documents and logs requested to provide a tracking summary of documentation reviewed, the purpose of the review, and its impact on the investigation. Although documents and logs were requested, not all were received. Freedom of Information Act (FOIA) petitions are currently under review. The tracking summary of the audit process includes correspondence, data requests, and document review status. A formal request for availability of additional documents is in progress.

2.2 Review of Documents and Logs

Documents and data were received from the County, Navy, and Keller Canyon as detailed in Table 1. Following initial review, additional data were requested through the RFI process. At Hunters Point efforts were concentrated on soils and materials sent to Keller Canyon based on the landfill classification and Special Waste Authorizations. Based on review of the anomalous soil samples at Parcel C and Parcel E (Tetra Tech 2014) and subsequent Nuclear Regulatory Commission (NRC) conclusions (NRC 2016), fraudulent misrepresentation of soil results was proven to have occurred during 2011 and 2012, but the soils were not released for unrestricted reuse or disposal. Although, such soils were stated to not have been disposed under the Special Waste Authorization, the documented misrepresentations created a probability that procedures may not have been followed during other previous site surveys at other parcels. For soil that would have been transported to Keller Canyon Landfill, there would only be chemical data associated with the soils, radionuclide concerns would not be applicable. In other words, soils in parcels that include Installation Restoration (IR) sites\(^1\) may be located adjacent to low-level radiologically contaminated areas, but were not considered impacted by radiologic material. Although soil was hand screened for radionuclides and marked in the field, there is no documentation of soil segregation and excavation processes at the IR sites. Because of this lack of documentation and because soil may have been located adjacent to radiologically impacted areas, the 2008 to 2010 timeframe was prioritized based on review of the background site assessments at the following Hunters Point parcels:

Parcel A – This parcel was evaluated in 2002 and 2004 by the United States Environmental Protection Agency (EPA) and transferred to the San Francisco Redevelopment Agency in December 2004 (CDPH 2014). Review of additional documentation from this parcel was removed from further consideration due to the transfer of the property prior to Keller Canyon Landfill accepting materials from Hunters Point.

Parcel B – This parcel contains IR sites, but excavation and off-site soil disposal was completed in 2010. The document and log review timeframe for Keller Canyon concludes in 2010.

Parcel D – Parcel D was divided into D-1 and D-2 in 2008. Prior to 2008, various environmental and radiological assessments were completed. In May 2010, at an IR site in Parcel D-1, a vault was removed, and soil excavation activities were completed. Additional radiological soil removal was completed in Parcel D-1 in October 2010 (TriEco-Tt 2013). In Parcel D-2, radiological removal actions were completed at Building 813 and trench locations by July 2009 (TriEco-Tt 2013).

\(^1\) Installation Restoration Program primarily addresses sites impacted by hazardous substances, pollutants, or contaminants that pose environmental health and safety risks excluding radiological contaminants.
Parcel F – This parcel is located off shore surrounding the wharf and shorelines, so no additional document or logs were reviewed.

A review of SOPs, Special Waste Authorizations, and analytical data from other areas of Hunters Point concluded that although the procedures in place appeared to be appropriate and acceptable in these areas, further evaluation of field logs, calibration logs, portal monitor logs, and bills of lading was necessary to complete a sufficiently comprehensive and independent review.

After reviewing available documents and logs, site visits were conducted at the Former Hunters Point and at Keller Canyon to obtain final response, status, or receipt of requested logs.

2.3 Site Visits

2.3.1 Former Hunters Point

On April 16, 2019, a Site visit at the Former Hunters Point was completed by the TRC team with the coordination and oversight of the Navy BRAC Office and the EHD. In addition, the current radiological contractor representative, APTIM, was on site to answer questions regarding current procedures. The Radiological Screening Yard pads, portal monitors and soil staging areas were visited along with a visit to a vantage point overlooking the entire former shipyard. Interviews of Navy personnel and the current radiological contractor revealed that procedures concerning the Radiological Screening Yard pad scanning and portal monitor operation during 2008 to 2010 were not documented as they are currently. The historical documents and logs requested are listed as not available (See Table 1), either because they were never generated during field activities (e.g., not required at that time), or as unavailable (e.g., due to ongoing litigation and subject to pending FOIA requests). The SOPs were revised to provide more documentation and logs for soil screening following the Navy investigation of anomalous soil samples in 2012. As a result of the historically documented deficiencies at Hunter Point and the documented fraudulent activities, we decided to focus on KCL as the primary source of data.

2.3.2 Keller Canyon Landfill

On April 17, 2019, a Site Visit at the Keller Canyon Landfill was completed by the TRC team with the coordination and oversight of the Keller Canyon Landfill and the EHD. A brief overview of landfill construction, operations, and the status of community concerns were discussed. A tour of the landfill allowed those present to observe current waste placement in an active cell and the operation of portal monitors. A review of onsite portal monitor calibration records was performed with no significant findings. An additional request for specific Special Waste Authorizations during the 2008 to 2010 timeframe (including analytical data) was made and subsequent Keller Canyon databases were queried to review truck loads, bills of lading, and tonnage tracking data. These queries identified that a specific authorization had been changed from its originally intended disposal location at Keller Canyon, and was instead diverted to another Republic Services landfill outside Contra Costa County. For that reason, this Special Waste Authorization was removed from further consideration in the forensic audit. Other Special Waste Authorizations during the 2008 to 2010 timeframe were reviewed with no significant findings, but would need to be further cross-referenced with bills of lading to confirm receipt at the landfill.

3.0 Findings

Available data were evaluated in order to answer the following question: **Is it possible that soil destined for the Keller Canyon Landfill and originating from the Former Hunters Point Naval Shipyard could have had some composition of radioactive materials that avoided detection?**
A tour of Keller Canyon and review of radiation monitoring logs as well as a review of available documents demonstrated that procedures were in place to prevent inadvertent deposition of radiologic waste at the landfill. Similarly, a review of SOPs, Special Waste Authorizations, and analytical data from Hunters Point concluded that the procedures in place appeared to be appropriate and acceptable.

Based on these findings, it is very unlikely that radiologically contaminated material was transported from Hunters Point to Keller Canyon. However, there are several investigations still ongoing regarding the fraudulent sampling activities of the Navy contractor (Tetra Tech) at Hunters Point as well as an extensive resampling effort. Additionally, in several cases, secondary supporting documentation was lacking to confirm that SOPs and procedures were followed (e.g., lack of individual truck manifests). These concerns detract from the ability to state unequivocally that no radiologically impacted materials were transported to Keller Canyon from Hunters Point.

4.0 Conclusions and Recommendations

Based on this review of data, reports, logs, interviews, and site visits, it is concluded that it is very unlikely that radiological materials of concern (i.e., radionuclides specific to Hunters Point contamination and in exceedance of background) were disposed of at Keller Canyon. To obtain greater certainty that no radiologically contaminated material from Hunters Point was received at Keller Canyon, limited environmental field sampling could be performed at Keller Canyon.

5.0 Proposed Sampling Scope

Based on observations of Keller Canyon Landfill operations, a scoping survey could be conducted. Media to be sampled could include leachate (since the water runoff system used at Keller Canyon is self-contained and recirculated through the landfill) and methane. The methane gas system uses multiple filter systems and these methane filters could be sampled. Surface soils from the cells active prior to 2010, and soil or sediment from the sediment basin could also be sampled as necessary. Details of a limited sampling scope for leachate and/or methane can be developed which would focus on detection of radionuclides specific to those identified at Hunters Point and at levels exceeding background in the subject media at Keller Canyon Landfill.

6.0 References


List of Special Wastes, Cal. Code Regs. tit. 22 § 66261.120.


<table>
<thead>
<tr>
<th>Record Date</th>
<th>History Author or Document Source</th>
<th>Recipient</th>
<th>Title of Document/Report</th>
<th>Correspondence Type</th>
<th>Requested Information or Response</th>
<th>Purpose</th>
<th>Items Provided</th>
<th>Impact to Forensic Audit</th>
<th>Status of Review</th>
<th>Follow-up/Clarification Required?</th>
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<tbody>
<tr>
<td>October 2018</td>
<td>Contra Costa Environmental Health</td>
<td>TRC</td>
<td>2007 Radiological Work Plan</td>
<td>Data Deliverable</td>
<td>Documents provided by Contra Costa County Environmental Health as start of contract.</td>
<td>To review the work plan as background information.</td>
<td>Work Plan</td>
<td>Indicated the flow of materials through the operational site is disposed appropriately</td>
<td>Reviewed</td>
<td>Revised Work Plan requested.</td>
</tr>
<tr>
<td>October 2018</td>
<td>Contra Costa Environmental Health</td>
<td>TRC</td>
<td>Investigation Summary, Historical Soil Samples at Hunters Point Naval Shipyard, Revision 1</td>
<td>Data Deliverable</td>
<td>Documents provided by Contra Costa County Environmental Health as start of contract.</td>
<td>To indicate the investigation for possible misrepresentation of sample results.</td>
<td>Report dated April 2014</td>
<td>Provided report summarizing the Incriminator identified after review of the radiological sample analysis.</td>
<td>Reviewed</td>
<td>Completed</td>
</tr>
<tr>
<td>November 2018</td>
<td>Navy Base Realignment and Closure (BRAC)</td>
<td>TRC</td>
<td>2013 Final Radiological Work Plan</td>
<td>Email</td>
<td>Revised work plan under standard operating procedures were required to be changed.</td>
<td>To review the work plan to confirm the procedures were more stringent than previous.</td>
<td>Report dated August 2015</td>
<td>Confirmed that potential areas of contamination were closed.</td>
<td>Reviewed</td>
<td>Follow-up for more information regarding waste that left HPNS.</td>
</tr>
<tr>
<td>October 2018</td>
<td>Contra Costa Environmental Health</td>
<td>TRC</td>
<td>Nuclear Regulatory Commission (NRC) Investigation Report, Notice of Violation, and Confidential Order</td>
<td>Data Deliverable</td>
<td>Documents provided by Contra Costa County Environmental Health as start of contract.</td>
<td>To document violations involving failure by Tetra Tech EC, Inc. to evaluate the potential radiological impact of material in disposal at Hunters Point Naval Shipyard (HPNS) and formal documentation of violation and preliminary settlement agreement.</td>
<td>Letters from NRC to Tetra Tech EC, Inc. dated 02/11/16, 07/28/16, and October 11, 2016</td>
<td>Potential materials could have been inappropriately released for unrestricted use</td>
<td>Reviewed</td>
<td>Follow-up with focus on timeframe of 2008 to 2010 based on potential misrepresented data and lack of documented procedures noted during review of these documents.</td>
</tr>
<tr>
<td>October 2018</td>
<td>Contra Costa Environmental Health</td>
<td>TRC</td>
<td>Draft Radiological Data Deliverable Documents for HPNS</td>
<td>Data Deliverable</td>
<td>Documents provided by Contra Costa County Environmental Health as start of contract.</td>
<td>To review the reports that detail historical radiological data collected by Tetra Tech EC, Inc. for HPNS and assessments made regarding the potential for data falsification or manipulation.</td>
<td>Report dated August 2015</td>
<td>Provided background information regarding the soil sample data manipulation and falsification allegations at HPNS and re-evaluation of testing and re-evaluation of reAEA and confirmation sampling, or physical inspection of archived samples is required.</td>
<td>Reviewed</td>
<td>Follow-up with focus on timeframe of 2008 to 2010 based on potential misrepresented data and lack of documented procedures noted during review of these documents.</td>
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### Table 1: Investigation of Potentially Radioactive or Hazardous Waste in Keller Canyon Landfill (KCL) Forensic Audit Tracking Log

<table>
<thead>
<tr>
<th>Record Date</th>
<th>History Author or Document Source</th>
<th>Recipient</th>
<th>Title of Document/Report</th>
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<th>Requested Information or Response</th>
<th>Purpose</th>
<th>Items Provided</th>
<th>Impact to Forensic Audit</th>
<th>Status of Review</th>
<th>Follow-up/Clarification Required?</th>
</tr>
</thead>
<tbody>
<tr>
<td>11/20/2018</td>
<td>TRC</td>
<td>Navy BRAC</td>
<td>Request for Information (RFI) - Investigation of Potentially Radioactive or Hazardous Waste in KCL</td>
<td>Email</td>
<td>Documents and information requested: Complete waste EPA manifests and/or Bills of Lading-Radiological screening process Lead/Lug Rad/Lot Serial Number information Radionuclide Monitor calibration and records of instrument checks-Questions regarding review of disposal documentation and landfill operations specific to Chemical and radiological analysesDaily cover or other locations where soil was placed-Samples for wet chemistryAnalysis of samplesQuantity assurance/calibration testing, sampling, or testing.</td>
<td>To document and provide background to explain what was expected to be disposed at T. To explain the need to expand the sampling because the T. To document what type of materials would be least likely deposited in KCL. If there was an incompatible materials shipment event.</td>
<td>RFI detailing the reason for request, project background, Special Waste Transmittal Sheet and waste acceptance information.</td>
<td>The observation of these documents set the primary data points, as areas new and areas that were not affected.</td>
<td>Reviewed</td>
<td>Navy BRAC provided information as detailed in the items below.</td>
</tr>
<tr>
<td>11/20/2018</td>
<td>TRC</td>
<td>Republic Services</td>
<td>TRC - Investigation of Potentially Radioactive or Hazardous Waste HPNS</td>
<td>Email</td>
<td>Documents and information requested: Complete waste EPA manifests and/or Bills of Lading-Radiological screening process Lead/Lug Rad/Lot Serial Number information Radionuclide Monitor calibration and records of instrument checks-Questions regarding review of disposal documentation and landfill operations specific to Chemical and radiological analysesDaily cover or other locations where soil was placed-Samples for wet chemistryAnalysis of samplesQuantity assurance/calibration testing, sampling, or testing.</td>
<td>To identify the level of protection at the KCL from potentially radioactive materials, and to estimate the likelihood of an incident occurring of inadvertent deposition of radioactive material from the HPNS operations.</td>
<td>RFI detailing the reason for request and project background</td>
<td>An estimation of the level of protection that the board of directors of the city would be made based on the information reviewed prior. Additionally, secondary information that internal probability was reviewed.</td>
<td>Republic Services Provided information as detailed in the items below.</td>
<td></td>
</tr>
<tr>
<td>12/11/2018</td>
<td>Republic Services</td>
<td>TRC</td>
<td>Response to RFI</td>
<td>Email</td>
<td>Reference electron configuration and clarification to specific documents.</td>
<td>To follow-up on RFI.</td>
<td>Response and update on RFI items.</td>
<td>Established communication with KCL</td>
<td></td>
<td></td>
</tr>
<tr>
<td>12/20/2018</td>
<td>Republic Services</td>
<td>TRC</td>
<td>Response to RFI</td>
<td>Email</td>
<td>Continue follow-up for additional information regarding specific SMA.</td>
<td></td>
<td></td>
<td></td>
<td>Completed</td>
<td></td>
</tr>
<tr>
<td>1/3/2019</td>
<td>Navy BRAC</td>
<td>TRC</td>
<td>Response to RFI</td>
<td>Email</td>
<td>Responded with plans and Standard Operating Procedure (SOP) documents, and additional Navy resource fact sheets.</td>
<td></td>
<td></td>
<td></td>
<td>Completed</td>
<td></td>
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<tr>
<td>1/23/2019</td>
<td>Navy BRAC</td>
<td>TRC</td>
<td>Response to RFI</td>
<td>Email</td>
<td>Responded with details on laboratory analyses for chemicals of concern and radionuclides in soil from installation Restoration Sites.</td>
<td>To review soil sampling and disposal parameters for installation Restoration Sites that were revisited during the HPNS radiological survey or materials removed and handled, and clarity of handlings of soil disposal.</td>
<td>Allied Waste Sample Strategy Draft Waste Profile Change - IR29 IR59 and IR56 Characterization Results IR59 Analytical Results IR56 Data</td>
<td>Evaluate actions taken by parties responsible and confirm completion of soil sampling and identification. This information does not provide radiological screening of the soil at KCL.</td>
<td>Reviewed</td>
<td>Follow-up with questions regarding the pilot study to in-house radiological screening of the analytical laboratory (Test America) and soil movement, analysis and shipping during removal of soils from the installation Restoration Sites.</td>
</tr>
</tbody>
</table>
Investigation of Potentially Radioactive or Hazardous Waste in Keller Canyon Landfill

1/29/2019 Republic Services TRC Response to RFI Email Requested information in original RFI.

1/29/2019 Republic Services TRC Requested information regarding: Alarm point, screening levels, portal monitor speed limit, permit or licensing for Norm/Tenorm for the landfill, daily cover dropdown checklist. Not all noted reported Special Authorization numbers assigned to HPNS were deposited at KCL.

1/29/2019 Republic Services TRC Baseline evaluations could not be made because of lack of evidence. Review completed. Follow-up with the Navy ongoing.

1/30/2019 Republic Services TRC To review, confirm, and analyze KCL portal monitoring procedures, logs, and calibrations. Request for a summary of specific Test America analytical lab reports and summary of review of background reports for soil removals at the Installation Restoration sites. To assess impact of adjacent impacted soils on Special Authorization materials.

2/27/2019 Republic Services TRC Request data from Republic Services for material disposal information during 2008 to 2010.

2/27/2019 Republic Services TRC Request data from Republic Services for material disposal information during 2008 to 2010.

2/28/2019 TRC Republic Services KCL Site Visit Email Follow-up Schedule site visit at KCL. To provide onsite perspective of operations. -- -- -- Completed

3/1/2019 Republic Services TRC To observe landfill operations and tour the former HPNS parcels, radiological screening yard (RSY) pads, and portal monitors. April 16, 2019 (afternoon) – Former HPNS – meeting request with specific time and agenda forthcoming.

3/2/2019 Republic Services TRC To observe landfill operations and tour the former HPNS parcels, radiological screening yard (RSY) pads, and portal monitors. April 17, 2019 – KCL – meeting request with specific time and agenda forthcoming.

3/3/2019 TRC Republic Services KCL Site Visit Email To provide onsite perspective of operations. -- -- -- Completed

3/5/2019 Republic Services TRC To provide onsite perspective of operations. -- -- -- Completed

4/1/2019 TRC Republic Services KCL Site Visit Email To provide onsite perspective of operations. -- -- -- Completed

4/1/2019 TRC Republic Services KCL Site Visit Email To provide onsite perspective of operations. -- -- -- Completed

4/2/2019 Navy BRAC TRC Chemical Lab Data Follow-up Email Requested clarification on data provided. To receive and review the full impact of the sampling events. April 16, 2019 (afternoon) – Former HPNS – meeting request with specific time and agenda forthcoming. To review and review the full impact of the sampling events. April 17, 2019 – KCL – meeting request with specific time and agenda forthcoming.

4/4/2019 TRC Republic Services KCL and HPNS Site Visits Scheduled Email Schedule Site Visits. To receive and review the full impact of the sampling events. April 16, 2019 (afternoon) – Former HPNS – meeting request with specific time and agenda forthcoming. To receive and review the full impact of the sampling events. April 17, 2019 – KCL – meeting request with specific time and agenda forthcoming.

5/2/2019 Republic Services TRC 2008 - 2010 Material from HPNS Email Requested data from Republic Services for material disposal information during 2008 to 2010.

5/2/2019 Republic Services TRC Requested data from Republic Services for material disposal information during 2008 to 2010.

Follow-up/Clarification Requested?

Reviewed

Completed

Reviewed

Follow-up with the Navy ongoing regarding the documentation of soil movement in Installation Restoration sites and establishing concurrence on the probability that soils were radioactively contaminated.
<table>
<thead>
<tr>
<th>Record Date</th>
<th>Primary Author or Document Source</th>
<th>Recipient</th>
<th>Title of Document/Record</th>
<th>Correspondence Type</th>
<th>Requested Information or Response</th>
<th>Purpose</th>
<th>Items Provided</th>
<th>Impact to Forensic Audit</th>
<th>Status of Review</th>
<th>Follow-up/Clarification Required?</th>
</tr>
</thead>
<tbody>
<tr>
<td>5/3/2019</td>
<td>Navy BRAC, other Navy participants and Contra Costa County Environmental Health participants</td>
<td>TRC</td>
<td>HPNS Site Visit - Radiological Forensic Audit for KCL, Site Visit Notes and Action Items</td>
<td>Email</td>
<td>To confirm info obtained during site visit and list action items.</td>
<td>Meeting Notes from 4/16/19 site visit to HPNS submitted.</td>
<td>Provide perspective on operations and identify the remaining action items and test request for documents and images.</td>
<td>–</td>
<td>Completed</td>
<td></td>
</tr>
<tr>
<td>5/3/2019</td>
<td>Republic Services &amp; Contra Costa County Environmental Health participants</td>
<td>TRC</td>
<td>KCL Site Visit - Radiological Forensic Audit for KCL - Site Visit Notes and Action Items</td>
<td>Email</td>
<td>To confirm info obtained during site visit and list action items.</td>
<td>Meeting Notes from 4/17/19 site visit to KCL submitted.</td>
<td>BRM multiple operations on going, without manifest or weigh tickets it is impossible to determine if any are paid for any one operation.</td>
<td>–</td>
<td>Completed</td>
<td></td>
</tr>
<tr>
<td>5/6/2019</td>
<td>Navy BRAC</td>
<td>TRC</td>
<td>HPNS Site Visit - Radiological Forensic Audit for KCL - Site Visit Notes</td>
<td>Email</td>
<td>Response to site visit notes.</td>
<td>To document a “typical” load of material from excavation through transport to disposition at KCL.</td>
<td>Clarifications on site visit notes: 1. Radiological scanning of the RSY pads is done with cart-based detectors and verified with hand held instruments if signal levels are detected. 2. Protocol for trucks carrying and loading material, but has been in place for a number of years. 3. Portal monitor logs are available from 2014. It was not as much a corrective measure as a record of a recent incident documentation and an update of contracts. 4. Connection that community meetings are 3 times per year. The next meeting is planned for June 2019 but may be postponed based on the rescheduling schedule. Public tours scheduled May 18th, 2019.</td>
<td>Reviewed</td>
<td>Completed</td>
<td></td>
</tr>
<tr>
<td>5/8/2019</td>
<td>Contra Costa County Department of Conservation and Development</td>
<td>TRC &amp; site visit participants</td>
<td>KCL Site Visit - Radiological Forensic Audit for KCL - Site Visit Notes and Action Items</td>
<td>Email</td>
<td>Item #3 under Discussion/Items Addressed says the portal monitors were set off at least twice since the past 15 years. Each time, the monitors were evaluated and corrective actions performed.</td>
<td>To clarify issues related to reported portal monitor alarms and events.</td>
<td>Corrective actions in process of communication and identifies the cause for an occurrence. There is no negative impact to the evaluation.</td>
<td>Reviewed</td>
<td>Completed</td>
<td></td>
</tr>
<tr>
<td>5/9/2019</td>
<td>Republic Services</td>
<td>TRC</td>
<td>KCL Site Visit - Radiological Forensic Audit for KCL - Site Visit Notes and Action Items</td>
<td>Email</td>
<td>Small correspondence between CCG Health Services, TRC, and Republic Services.</td>
<td>To define all SWA Numbers granted to HPNS that would have been disposed at KCL.</td>
<td>Republic issued - Obtain volume (tonnage received) records and bills of lading from 2008-2010 for SWA 204Y7908. Republic Services researched the matter to confirm that no HPNS material was received at KCL under the authorization. This number formalized by comparing with Republic Services’ standard SWA standard numbering system. The port number was identical but in the incorrect alphabetical order of Special Waste Authorization Profiles (SWA) vs. Port Numbers. Republic Services verified the number to confirm that no HPNS material was received at KCL under the authorization.</td>
<td>Reviewed</td>
<td>Completed</td>
<td></td>
</tr>
<tr>
<td>7/19/2019</td>
<td>Contra Costa County Environmental Health</td>
<td>TRC</td>
<td>KCL portal monitor alarm events</td>
<td>Email</td>
<td>Email requesting the portal monitor alarm data be requested by Contra Costa County Environmental Health on July 5, 2019.</td>
<td>To memorialize whether the portal monitors performed as intended.</td>
<td>Documented that the portal monitors function as specified for the types of material documented in the report received.</td>
<td>Reviewed</td>
<td>This was a follow-up from the review of logs during the site visit at the landfill in April 2019.</td>
<td></td>
</tr>
</tbody>
</table>
§ 66261.120. List of Special Wastes.

(a) The following is a non-inclusive list of wastes which may be classified as special wastes pursuant to section 66261.122:

1. ash from burning of fossil fuels, biomass and other combustible materials;
2. auto shredder waste;
3. baghouse and scrubber wastes from air pollution control;
4. catalyst from petroleum refining and chemical plant processes;
5. cement kiln dust;
6. dewatered sludge from treatment of industrial process water;
7. dewatered tannery sludge;
8. drilling mud from drilling of gas and oil wells;
9. refractory from industrial furnaces, kilns and ovens;
10. sand from sandblasting;
11. sand from foundry casting;
12. slag from coal gasification;
13. sulfur dioxide scrubber waste from flue gas emission control in combustion of fossil fuels;
14. tailings from the extraction, beneficiation and processing of ores and minerals;

Note: Authority cited: Sections 208 and 25140, Health and Safety Code.