HFD FIRE STATION CONSOLIDATION
Value Management Study

October 21, and 22, 2014

Requested by:  Gerry Griffin, Emergency Services
Mission Support Alliance
Richland, Washington

Facilitated by:  Richard A. Harrington, CVS-Life
Ginger Kidder, Project Specialist
Harrington & Associates, LLC
Richland, Washington
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Station 91 – 100 Area

Station 92 – 200/600N

Station 93 – 300 Area

Station 94 – 400/600S
EXECUTIVE SUMMARY

The Hanford Fire Department (HFD) operated by Mission Support Alliance (MSA) is a full service fire and emergency agency. The HFD provides services to all Hanford Site contractors, which includes structural/wild-land fire incidents, emergency medical incidents, rescue operations, hazardous material incidents, chemical/biological and radiological incidents/accidents.

Over the past five years considerable mission clean-up work has been completed along the Columbia River Corridor, 100, 200, 300, and 400 areas. The majority of these clean-up projects will complete by 2020, leaving the remaining site cleanup operations in the 200 East, West, and 600 North areas. The future site focus will require HFD emergency response to events and activities that adapt to the changing work locations, conditions, and work populations.

A Value Management (VM) study was conducted on October 21, and 22, 2014, at the HAMMER Facility, Conference Room 12. The purpose of the study was to develop a Hanford site-wide framework, strategy, future station location recommendations and the path forward to successfully achieve the HFD consolidation plan. This multidisciplinary VM team consisted of representatives from MSA, CH2M Hill Plateau Remediation Company (CHPRC), Washington Closure Hanford, LLC (WCH), Washington River Protection Solutions, LLC (WRPS), Energy Northwest (ENW), Bechtel National Incorporated (BNI), Pacific Northwest National Laboratory (PNNL), the Department of Energy Richland Operations Office (DOE-RL), Office of River Protection (DOE-ORP), and DOE Pacific Northwest site Office (PNSO).

Appendices D contains the VM Study Scope Statement Sheet, Process Guidelines, Agenda, and Attendance Roster, developed prior to and followed throughout the two-day session.

Session Results
The VM team successfully achieved and in some cases may have exceeded the purpose. The results are contained in Appendix A, Path Forward Actions, Strategy, and Fire Station Alternative Recommendations; Appendix B Information Phase and Support Data; and Appendix C, Study and Pre-Study Function Diagrams.

In summary, the path forward actions were developed to incorporate site-wide response needs and essential updates into the HFD consolidation, response, and apparatus plans, and to obtain a DOE-RL and PNSO determination on appropriate fire service coverage south of the Wye barricade, following 2020 fire station consolidation. These actions resulted from a two-point path forward strategy to 1. Align allowable/acceptable response time between three field offices Authority Having Jurisdiction (AHJs), and 2. Implement the recommendation to maintain station 92, close station 91 by 2020, and build a new ENW station, or between ENW and the 300 Area.

The four future station consolidation priority ranked alternatives were: 1. Station 92 and a new station at ENW; 2. Station 92 and a new station located between ENW and the 300 Area; 3. Stations 92 and 93; and 4. Station 92 and a new station located at Central Plateau East.

The study was completed following a Management Briefing of these results and closing remarks from each attendee and team member to address any open items, solicit enhancements and meeting utility. In brief, the team and management felt the study was well worth the effort, value-added, and looked forward to successfully achieving the path forward.
EXECUTIVE SUMMARY

Session Process
The workshop began with the purpose, safety topic, introductions, and opening remarks. Gerry Griffin and Chief Kuhman delivered opening remarks which centered on the need to define area response needs as a function of time and judiciously serve the Hanford site-wide community. The opening remarks transitioned into the information phase which began with the consolidation plan overview and a list of Keywords. By design the keywords were developed to draw out the most current information and milestones within the Hanford site-wide scope. Considerable dialogue evolved from one keyword to another and centered on changing work locations, conditions, facility mission hazards, apparatus needs, and work populations.

Throughout this process any supplemental information, such as memories (i.e., ideas or goals) enabling assumptions, gaps/challenges, and definitions were recorded on flipcharts (a.k.a., parking-lot sheets) for recall and validation. In addition, any item of significant importance was denoted by a “flag-note” symbol (আ) for quick visual reference. Areas identified with a flag-note ranged from key demolition or remediation completion milestones, new facilities, and site population changes, to diesel fuel and anhydrous ammonia tanks, outages, AHJs, response times; equivalency/exemptions, differing viewpoints, and Hanford historical response times.

Following the information phase keywords, the facilitator led the team into the Function Analysis Phase starting with the review of pre-study FAST diagram, and finishing with a study diagram which focused on response time and risk. The primary objective of this phase was to solidify the information phase by applying logic to key mission functions, while recording additional parking-lot information, and establishing a foundation to transition into creative and evaluation phases.

During the creative phase the team defined the four alternatives for evaluation and subsequent definition of weighted criterion. Following alternative and criterion definition, including criteria weighting, the team defined and prioritized advantages and disadvantages of each alternative. This information served as the foundation to complete the alternative matrix which prioritized and ranked the four future station alternatives. Once again considerable dialogue evolved, such as definition of risk areas and response times that were recorded, as appropriate, during and after the alternative matrix ranking process.

The path forward followed with the team’s review and validation of the previous information phase flag-note information and recorded parking-lot information, which in turn solidified the teams’ path forward strategy and actions required to proceed. At this point, the facilitator lead the team into the management briefing of the study results; liquidated all questions and answers; solicited enhancements, and completed the round robin for each attendee’s closing remarks.

Facilitator Remarks
The team (HFD, six prime contractors, and three DOE field offices representatives) did well, stayed the course, and covered a lot of ground in short period of time. This team was dedicated, proactive, and synergistic in their approach to build off each member’s input and ideas from the information phase through the evaluation alternative ranking phase, and path forward. Special thanks to Gerry Griffin and Rich Kobelski for their leadership and preparation support prior to and throughout this two day study.
PATH FORWARD AND FIRE STATION RECOMMENDATIONS

• Path Forward Actions, Strategy and Fire Station Recommendations......................4
• Analysis Matrix and Evaluation Criteria..........................................................4-7
  – Four Alternative Advantages and Disadvantages
# PATH FORWARD ACTIONS

<table>
<thead>
<tr>
<th>#</th>
<th>WHAT</th>
<th>WHO/WHEN</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Incorporate VM Study results into the next Consolidation Plan revision</td>
<td>Chief Kuhman 04/30/15</td>
</tr>
<tr>
<td>2</td>
<td>Validate need for WTP aerial apparatus, and incorporate into the Apparatus Plan</td>
<td>Chief Kuhman 04/30/15; Tom Nelson 04/30/15</td>
</tr>
<tr>
<td>3</td>
<td>Incorporate ENW and WRPS peak labor population demands into response planning</td>
<td>Tom Nelson 12/30/14</td>
</tr>
<tr>
<td>4</td>
<td>PNSO and RL determine appropriate fire service coverage (south of the Wye barricade, including response time), post fire station consolidation</td>
<td>Joe Christ 09/30/15; Angela Ensunsa 09/30/15</td>
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## PATH FORWARD STRATEGY

- Recommend to align allowable/acceptable response time with the three existing AHJ(s)
- Close 91 station in 2020 and build a new station at ENW, or in between ENW and the 300 Area

<table>
<thead>
<tr>
<th>Alt #</th>
<th>FIRE STATION ALTERNATIVE RECOMMENDATIONS</th>
<th>Priority Ranking</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Stations 92 and 93</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td>• Close 91 in 2020</td>
<td></td>
</tr>
<tr>
<td>2</td>
<td>Station 92 and new station at ENW</td>
<td>1</td>
</tr>
<tr>
<td></td>
<td>• Close 91 in 2020 and 93 in 2019</td>
<td></td>
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<tr>
<td>3</td>
<td>Station 92 and new station at WTP/CPE</td>
<td>4</td>
</tr>
<tr>
<td></td>
<td>• Close 91 in 2020</td>
<td></td>
</tr>
<tr>
<td>4</td>
<td>Station 92 and new station between ENW &amp; 93</td>
<td>2</td>
</tr>
<tr>
<td></td>
<td>• Close 91 in 2020</td>
<td></td>
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**Note:** The existing alternative, operate stations 91, 92, and 93 (i.e., do nothing) was eliminated from this evaluation, but could be leftover if budget is eliminated or money runs out.
APPENDIX A

WEIGHTED ANALYSIS ALTERNATIVE MATRIX

Evaluation Matrix Process and Result Notes:
Process Note:
- Alternative #1: response time rated as 2, although labor at ENW says not acceptable, 300 Area says good or 3.

Result Notes:
- Two options or at least Alternative# 3 drops off, maybe alternative #1.
- Need to protect south of Wye Barricade
EVALUATION CRITERIA

<table>
<thead>
<tr>
<th>#</th>
<th>Criteria</th>
<th>%</th>
<th>Rank</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Mitigate Risk:</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>1. Hazardous Material Release</td>
<td>40</td>
<td>1</td>
</tr>
<tr>
<td></td>
<td>2. Medical Response</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>3. Fire Fighter Safety</td>
<td></td>
<td></td>
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<tr>
<td></td>
<td>4. Property Loss</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>5. Public Perception</td>
<td></td>
<td></td>
</tr>
<tr>
<td>2</td>
<td>Optimize response time</td>
<td>30</td>
<td>2</td>
</tr>
<tr>
<td>3</td>
<td>Maximize cost effectiveness</td>
<td>20</td>
<td>3</td>
</tr>
<tr>
<td>4</td>
<td>Align with clean-up mission</td>
<td>10</td>
<td>4</td>
</tr>
<tr>
<td></td>
<td><strong>Total</strong></td>
<td></td>
<td>100%</td>
</tr>
</tbody>
</table>

RISK MANAGEMENT

- Risk = probability times consequence
  1. Hazardous Material Release
  2. Medical Response
  3. Fire Fighter Safety
  4. Property Loss
  5. Public Perception
## ALTERNATIVE ADVANTAGES/DISADVANTAGES

<table>
<thead>
<tr>
<th>Alt. #</th>
<th>New Rank</th>
<th>Advantages</th>
<th>Disadvantages</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>3</td>
<td><strong>Station 92 and 93 (as it exist today)</strong>&lt;br&gt;  - Close 91 in 2020&lt;br&gt;  - Serves all Nuclear Facilities&lt;br&gt;  - Minimizes HAMMER, PTA, and 300 Area response time&lt;br&gt;  - Cost benefit</td>
<td>1. No response time change south of Wye Barricade&lt;br&gt;  2. Station 93 will require life extension upgrades by 2024&lt;br&gt;  3. Partial credit to the clean-up mission&lt;br&gt;  4. Not analyzed in the current consolidation plan or BNA&lt;br&gt;  5. Disproportionate allocation of resources</td>
</tr>
<tr>
<td>2</td>
<td>1</td>
<td><strong>Station 92 and new at ENW</strong>&lt;br&gt;  - Close 91 in 2020 and 93 in 2019&lt;br&gt;  1. Reduces response time to higher populations south of Wye barricade (i.e., ENW, 618-10 &amp; -11, 400 Area, and LIGO)&lt;br&gt;  2. Increase staffing and resources south of Wye Barricade&lt;br&gt;  3. Cost effective&lt;br&gt;  - Less cost to build by ENW and no “upfront capital cost”&lt;br&gt;  4. Analyzed in the current BNA</td>
<td>1. Increases, HAMMER, PTA, and 300 Area response time&lt;br&gt;  2. Partial credit to the clean-up mission</td>
</tr>
<tr>
<td>3</td>
<td>4</td>
<td><strong>Station 92 and new at WTP/CPE</strong>&lt;br&gt;  - Close 91 in 2020&lt;br&gt;  1. Minimizes response time to high population and majority of nuclear facilities&lt;br&gt;  2. Maximizes resources&lt;br&gt;  - People and equipment&lt;br&gt;  3. Aligns with clean-up mission&lt;br&gt;  4. Analyzed in current BNA</td>
<td>1. Increase all response times south of Wye: ENW, 618-10 &amp; -11, HAMMER, PTA, 300 &amp; 400 Area, and LIGO&lt;br&gt;  2. Increase Site-wide wild land response times&lt;br&gt;  3. Potential exposure to anhydrous ammonia to Fire Fighters&lt;br&gt;  4. Increase cost</td>
</tr>
<tr>
<td>4</td>
<td>2</td>
<td><strong>Station 92 and new between ENW &amp; 300 Area</strong>&lt;br&gt;  - Close 91 in 2020&lt;br&gt;  1. Serves all Nuclear Facilities&lt;br&gt;  2. Equal response time south of Wye&lt;br&gt;  3. Minimize response time to HAMMER, Patrol Training Academy (PTA), and 300 Area versus options/alternative #2 and 3&lt;br&gt;  4. Improves resource diversification</td>
<td>1. Increase cost&lt;br&gt;  2. Potential land availability&lt;br&gt;  3. Partial credit to clean-up mission</td>
</tr>
</tbody>
</table>

**Note:** All four alternative increase 100 Area response time after Station 91 closure and demolition
INFORMATION PHASE AND SUPPORT DATA

- Keyword Data ...........................................................................................................9-13
- Parking Lot Information Sheets ..............................................................................14
  - Enabling Assumptions
  - Gaps/Challenges
  - Definitions
  - Memories
APPENDIX B

INFORMATION PHASE KEYWORDS

1. Consolidation Plan Overview, Map, and Schedule
2. Area Response Needs: 100, 200E/W (600N&S), 400, & 300
   - WCH, CHPRC, WRPS, MSA, BNI, ENW, and PNNL:
     - Define facility response needs, DSA credits, as a function of time (e.g. 2014, 2018, & 2021)
3. PNNL and HFD Service Agreement
4. Authority Having Jurisdiction (AHJ)
5. NFPA 1710 Equivalency Request
6. Standard of Cover (Capability and Capacity)
7. Response Time
8. HFD Crew Size and Staffing
9. Parking-Lot Information Sheets:
   - Enabling/Assumptions, Gaps/Challenges, Definitions, and Memories

1. **Consolidation Plan Overview, Map, and Schedule (HFD)**
   - From four stations to maybe two
     - Began this effort in 2011
       - What will the organization look like moving forward
     - Obtained Subject Matter Expert (SME) support, interfaced with DOE and Facility owners
     - Stations: 91 – 100 Area, 92 – 200/600N Area, 94 – 400/600S Area, and 93 – 300 Area
     - Timeline: 2013 – 2020 and future
       - 2018 upgrade station 92 and close 100 Area 91 station
     - Staffing will not be reduced
     - Have closed 400 Area, and re-opened until 300 Area upgrades are complete
     - Will not close or demo in near future
     - Proposed Central Plateau East (CPE) station
       - Overviewed conceptual design for the proposed upgrade
     - Overviewed station 92 outline
     - 300 Area Station 93 closure
       - Constructed in 1964 , same as 100 Area station 91
     - Closure activities based on PNNL not being there
     - 200 Area renovation upgrade
       - $\approx$ 3,500 square foot expansion
       - Overviewed conceptual plan view and specific activities
       - Expansion of restrooms, showers, lockers, and material storage
     - 100 Area station 91 and the timeline for closure; older facility, but in great shape
       - Overview closure criteria and activities
     - Overviewed schedules and initial cost estimates
     - Scope is based on Hanford Site Scope
       - Planning assumption is the Richland Fire Department will not happen

2. **Area Response Needs: 100, 200E/W (600N), 400/600S, & 300**
   - CHPRC, MSA, WCH, WRPS, BNI, ENW, and PNNL:
     - Define facility response needs, DSA credits, as a function of time (e.g. 2014, 2018, & 2021)
100 Area ——> Today Station 91

CHPRC (Dan Graham and Ashley Olsen):
- 100KW, Water Treatment Facility, several Pump and Treats
- 2014 ——> station 91 meets our needs
- Programmed out to 2018
- When the program schedule is achieved
- 2018 and Future: Based on what scope is left (e.g., Pump and Treats)
  Note: some clean-up work may slip through 2020, i.e., demolition and/or cocooning is scheduled to begin in or after 2018
- 100/600N Post – 2018 or 2020
- Wild-land consideration
  - Public access; pathways for walking, hiking, etc.
  - U.S. Fish and Wildlife interface
  - Response times will be impacted
  - BPA interface
  - Potential land transfers
- Cocooned reactors and defensible space
- Residential facilities and their occupants
  - Compensatory measures for Facility and Responders
    Note: Currently we will need fire response stage during day shift at 100KW

MSA (Rich Kobelski):
- Water pump house will continue for ten years or more
  - Operations and Maintenance B-reactor museum
  - Surveillance and Maintenance (S&M) on utilities, roads, and cocooned reactors
- Consider B-Reactor open to the Public

WCH (Connie Krull):
- S&M: bulk water distribution for WCH facilities, WIDS database, and fire system loops.
  - Working to complete scope in FY15. However, some proposals may extend to FY18
- Transition S&M reactors between FY15 and FY18
- Working H Area until FY15
- Working D/DR/D-MAC Areas until FY15
- Working N-Reactor Area until FY15
- B Area dig Site until FY15
  Note: WCH may be asked to re-enter for some spot clean-up
- After 2018, WCH scope is zero, done-done.
- UXO Site should complete this year FY15
  - ERDF: may go min-safe (no swing shift), minimum staffing
- After 2018 what remains is water exports and Pump and Treats around the corridor; including cocooned reactors, and B-reactor museum

200E/200W/600N Plateau — Today Station 92

CHPRC (Dan Graham and Ashley Olsen):
- We don’t credit fire response, but do credit 100 Area station for a back-up
- Station 92 is adequate today and through 2021
- PFP TPA Milestone slab on grade 12/2016
- Waste packaging and shipping to WIPP will resume in 2016
APPENDIX B

• **MSA (Rich Kobelski):**
  – Station 92 is adequate today and will be tomorrow
  ➔ Concern: aging water lines

• **WRPS (Stan Wallace):**
  – Adding ≈600 people around 2750-E, 2704-HV, and will build a processing facility next to ETF
    • 100 additional people this year
    • Balance of 500 over next 2-3 years
  – New LAW Pre-treatment facility between A-Farm and WTP (similar to evaporator size)
  – Estimated completion date (ECD) 2019
  – New smaller building, next to CSB, will be constructed, start 2017 – ECD 2021
  Note: WRPS does not credit today, nor in the future fire response time

• **WTP/BNI (A.J. Hill):**
  – Station 92 is serving us today; it is adequate
  – Overview project building plan
    • Currently ≈1234 people on Site
  – 2017 DSA goes into DOE
    • An increase of personnel
  ➔ 2018 estimate total population will be ≈2,500 people
    • ≈1700 people on day shift
    • 24/7 – 400 people on shift
  ➔ 2021→450K gallon diesel tank will have routine fill-ups
  ➔ Be mindful about simultaneous events between 2018 – 2021
    • Operations and construction priorities
  ➔ Additional trailers ≈800 people will be needed in 2016
  – Peak labor loading between 2017-2019
  – Cold water runs in 2017
  – CD-4 in 2021 contractor turn over
    ➔ Note: two 6K gallon anhydrous ammonia tanks on the SE side of facility
    • May require unique HAZ MAT response
  – All facilities are type 2N (UBC) or 2B (IBC)

➢ **600 Area:**
  • **WCH (Connie Krull):**
    – ERDF remains
    – 618-10 and 11 trench work will continue through FY18 – FY19
    Note: 618-11 may not complete; work left to be done

➢ **400 Area – Today Station 93**
  • **CHPrc and MSA (Dan Graham and Rich Kobelski):**
    – FFTF: MASF Facility until 2018 (K-Basin mock-ups)
      • ≈11 people
      • Sodium concerns in FFTF
        ➔ 250k gallons→frozen in a protected building
      • No D4 schedule
      • Exist through 2021; long-term stewardship
• **ENW**: (Steve Cooper)
  - Station 93 is adequate
  - There is on-site fire brigade
 .expand_more
    - When 93 goes away, 92 may not be sufficient response time
      - 1500 total employees
      - ≈1200 during the day
      - ≈150 on back-shift
      - A 24/7 operation
    - During outage an additional 1200-1300 people are added for six weeks – six months, or two months on the average
    - Currently have 110’ aerial that will spray over the reactor
    - We would like a new on-site station, but at present station 93 is sufficient
    - NRC initial response (Fukushima) is on-site without external support

- **300 Area**
  - Today Station 93

• **WCH** (Connie Krull):
  - Will depart ENW Unit 1 facilities in FY16
  - FF-1: Administrative personnel through FY16
  - 324 could go through 2021 if demolition then maybe FY18 or 19, if cocooned then FY17 (if cocooned will be min-safe)
  - Personnel and exposure is primary needs

• **PNNL** (Karl Bohlander and Neal Hara):
  - 318, 325, 331K & P, and 350 complex (4-5 buildings)
  - Station 93 is adequate
  - 318, 325, 331K & P, and 350 complex (4-5 buildings) will be there for 10 years
    - RL agreement is until 2026
  - PNSO expects to be there until after 2026
    - Note: this is under discussion, including life extension upgrades
  - Total population ≈400 mostly daytime, through 2026
    - With WCH (≈150) there is ≈550 people on-site
      - By 2020, ≈400 people on-site
  - No specific DSA credits for response time
  - Wheels rolling and wheels stop: five minute travel time maximum (otherwise it is assumed to be a four minute response), which is based on a SME discussion during temporary relocation of 300 Area personnel
  - A risk base determination via a Unreviewed Safety Question Determination (USQD)
  - FHA: loss reduction credits HFD response $150M property loss (325 Complex only)
    - Timely and effective
    - 325 is a Hazard Category II building, balance are less than Hazard Category III
  - Wild-land PNNL Site response
    - 300 Area South: George Washington Way out to River

**3. PNNL and HFD Service Agreement**
- Level of service for PNNL from HFD (Reference: J-3) for emergency service to 300 Area.
  - Does not include those PNNL facilities off-site, e.g., PSF, EMSL, etc.
  - This is emergency and support services, with the exception of the Fire Marshal
4. Authority Having Jurisdiction (AHJ)
   - The head of DOE field office organization
     1. PNSO: Roger Snyder
     2. RL: Doug Shoop
     3. ORP: Kevin Smith
   - The person authorized to make a decision
     - If delegated to the HFD, then the Fire Marshal is the AHJ
     - Limited delegation on codes, procedures, testing, etc.
     - Note: Equivalency or Exemptions
     - Fire Marshal will recommend and submit for DOE approval
       - CHPRC, WCH, and MSA works through the Fire Marshal
       - WRPS and BNI coordinate, but go directly to ORP
       - PNNL submits equivalencies or exemptions to PNSO
   - Conclusions:
     - Who ultimately makes the “equivalency” decision that impacts risk on response time?
       1. For HFD requests this is RL (Doug Shoop)
       2. WRPS or BNI requests go to ORP
       3. PNNL requests go to PNSO
     - Operational agreements exist between RL & PNSO, and RL & ORP

5. NFPA 1710 Equivalency Request
   - A five-year extension equivalency request is at RL to authorize response time relief
   - With exception of two or three facilities, response time of 4 minutes is not achievable
   - NFPA 1710 says we need to work equivalency request through our AHJ
   - The process for equivalency requests is in the DOE Orders, including CRDs

6. Standard of Cover (Capability and Capacity)
   - NOTE: our BNA(s) are essentially this keyword
   - How the Fire Department is structured, capability, capacity, and response history
   - A document that goes to the jurisdiction (AHJ)
   - Used as planning, document, risk management tool, etc.
   - The challenge is the Fire Department is driven by DOE Orders, WA Administrative Codes, and Contract Scope; Value is questionable based on funding/money
   - A management document so the AHJ can make risk based decisions

7. Response Time
   - Select the “appropriate” response time; a risk based decision
   - A Four Minute Response Time at Hanford would require many additional stations
   - Defined as 1. Process call, 2. Initiate dispatch (i.e., turn-out time), and 3. Travel time
   - NFPA-1710 is a consensus standard
     - Four minutes initial response
     - Eight minutes full response
   - Historically the Hanford fire response time on average is over Nine minutes
     - Some were < nine and achieved four minutes
     - Some responses were > nine minutes
APPENDIX B

8. HFD Crew Size and Staffing (determined to be worked outside of this study)

9. PARKING-LOT INFORMATION SHEETS

**ENABLING ASSUMPTIONS**

- √ DOE and ENW are currently partnering on a potential new station
  - This would satisfy many needs, but not PNNL
- √ 100 Area Pump & Treats will be here for ten years or longer
- √ HFD staffing and apparatus will remain constant through 2021
- √ Stations 91 and 93 have at least a 10 year life from today

√ = Valid Memories/Meeting Notes

**GAPS/CHALLENGES**

A2 √ Potential need for aerial apparatus at WTP HLW and Pretreatment buildings (91’ & 129’ respectively)

A1 √ Two anhydrous ammonia tanks planned for WTP

A4 √ Definition of “timely” response

A4 √ Definition of temporary conditions

A2 √ ENW outages (typically 2 months) will have peak labor load of ≈400 people 24/7, in addition to the existing staff of ≈1200

A3 √ WRPS: Increase labor load of 600 by 2018
  - 100 more this year
  - 500 more over a 2-3 year period

√ = Valid Gap/Challenge, no action required at this time

A# = Valid Gap/Challenge and action required

**DEFINITIONS**

- Safety Management Program (SMP) and DSAs are in place to invoke the necessary and sufficient elements of safety program.

**MEMORIES**

- √ Direction is to consolidate commensurate with clean-up
- √ Facility input was invaluable: Consider periodic sessions like this to incorporate updates into Plans

√ = Valid Memories/Meeting Notes
FAST DIAGRAM

- Study and Pre-Study Function Analysis System Technique (FAST) Diagrams..............16-17
HFD FIRE STATION CONSOLIDATION
STUDY FAST DIAGRAM
10/22/14

Legend:

$ = Cost
G = Gaps
R = Risk
T = Time
$ = Critical & Changes Over Time

Select Station Location
Determine Response Needs
Identify Facilities & Location
Identify Lifecycle

Prevent Fire
Control Fire
Optimize Response Time

Accept Risk
Mitigate Risk
Implement Mission

Authorize Deviation
Define Deviation

Quantify Consequences
Quantify Risk
Determine Strategy
Minimize Combustibles
Define Protection Features

Analyze Scenarios

Meet Requirements
Maintain Compliance
Protect Environment, People, and Assets

Identify Hazards
Quantify Radiation
Quantify Chemical
Quantify Physical
Quantify Natural Phenomenon
Quantify Combustible Loading

Identify Mission
Define Protection Features
Optimize Response Time

ALL: THE: TIME FUNCTIONS

DESIGN FUNCTIONS
APPENDIX C

HFD FIRE STATION CONSOLIDATION
PRE-STUDY FAST DIAGRAM
10/15/14

HOW
WHEN

Prevent Fire
Control Fire

DESIGN FUNCTIONS

WHY
WHEN

Meet Requirements
Maintain Compliance
Protect Environment, People, and Assets

ALL: THE: TIME FUNCTIONS

10/21/14

Save Lives
Resolve Trouble
Suppress Fire
Mitigate Spread

Protect Assets

Control Fire

Dispatch HFD Personnel
Optimize Response Time

Define Facility Needs and Requirements

Meet Requirements

Maintain Compliance

Define Risk
Define Facility Needs and Requirements

Engage Facility Owners

Activate Systems

Train Occupants

Train HFD Personnel

Develop Plan

House HFD Personnel
Select Station Location

Alert Occupants
Evacuate Occupants
Actuate Equipment

Supress Response
Detect Fire
Monitor Conditions

Summons Response

Alert Occupants

Evacuate Occupants
Actuate Equipment
SCOPE STATEMENT SHEET, AGENDA, OPENING REMARKS, GUIDELINES & EXPECTATIONS, AND ATTENDANCE ROSTER

- VM Study Scope Statement Sheet, Agenda, and Opening Remarks, Guidelines & Expectations, and Attendance Roster ................................................................. 19
- Team Briefing Agenda, Opening Remarks, VM Study Materials and Attendance Roster ................................................................. 24
## APPENDIX D

### PROJECT SCOPE STATEMENT SHEET

**Project Title:** Hanford Fire Station Consolidation Value Management Study  
**VM Study Location:** HAMMER Facility, Conference Room 12  
**Team Briefing Location:** 2425 Stevens Center, Conference Room 208  
**Date:** 10/21-22/14  
**Date:** 10/15/14

### TEAM MEMBERS

<table>
<thead>
<tr>
<th>NAME</th>
<th>PHONE</th>
<th>DISCIPLINE</th>
<th>CO.</th>
</tr>
</thead>
<tbody>
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<td>Emergency Services</td>
<td>MSA</td>
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<td>Fire &amp; ER Operations</td>
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<td>Fire Protection Engineering</td>
<td>DOE-RL</td>
</tr>
<tr>
<td>G.I. (Glenn) Goldberg</td>
<td>376-9552</td>
<td>Security and Emergency Services</td>
<td>DOE-RL</td>
</tr>
<tr>
<td>C.P. (Craig) Christenson</td>
<td>376-5367</td>
<td>Fire Protection Engineering</td>
<td>DOE-ORP</td>
</tr>
<tr>
<td>J.W. (Joe) Christ</td>
<td>372-4007</td>
<td>Pacific Northwest Site Office</td>
<td>PNSO</td>
</tr>
<tr>
<td>J.W. (Jim) Bixler</td>
<td>371-7755</td>
<td>Strategic Projects Division</td>
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</tr>
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<td>ENW</td>
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### PART-TIME 10/21/14 MEMBERS

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<td>Emergency Services</td>
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<td>G.L. (Greg) L. Jones</td>
<td>373-6821</td>
<td>Nuclear Safety Division</td>
<td>DOE-RL</td>
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<tr>
<td>C.A. (Corey) Low</td>
<td>376-4820</td>
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### VM FACILITATORS

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<td>R.A. (Richard) Harrington, CVS</td>
<td>376-3857</td>
<td>Value Management</td>
<td>H&amp;A</td>
</tr>
<tr>
<td>V.L. (Ginger) Kidder</td>
<td>376-7608</td>
<td>Value Management</td>
<td>H&amp;A</td>
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SCOPE

- Hanford Fire Department (HFD) Fire Station Consolidation Plan:
  - Hanford site clean-up mission and commensurate HFD resources and needs
  - 100, 200, 300, and 400 Area Fire Station Response Needs, as a function of time
  - Optimum Future Replacement Station or Stations Location, based on mission need
  - Key Interfaces—DOE Field Offices, Prime Contractors, Energy Northwest, and City of Richland
  - Key Requirements—Standard of Cover, Response Time, Authority Having Jurisdiction, etc.
  - Risk Management, Baseline Assumptions, and Interface Expectations

**Background/Opportunity:**
Over the past five years considerable mission clean-up work has been completed along the Columbia River Corridor, 100, 200, 300, and 400 areas. The majority of these clean-up projects will complete by 2021, leaving the remaining site cleanup operations in the 200 East, West, and North areas. The future site focus will require HFD emergency response to events and activities that adapt to the changing work locations, conditions, and work populations. A major component of timely emergency response is fire station infrastructure and location.

This initiative is to define the Hanford Site-Wide HFD consolidation plan with specific input and endorsement by the DOE Field Offices and prime contractors.

**OBJECTIVES**

- Develop a Hanford site-wide framework, strategy, future station location recommendations and the path forward to successfully achieve the HFD consolidation plan.
  - Define current and future area response needs
  - Identify areas of risk, gaps/challenges and mitigation actions
  - Prioritize/rank future station location options and align interface expectations

- VM Six-Step Phased Approach:
  - **Information Phase:** Define scope, schedule, key requirements, strategy, resource & staffing needs
  - **Function Analysis Phase:** Define function statements and apply logic with the Function Analysis System Technique (FAST) diagram method
    - Identify high risk, gaps, high cost and schedule impact functions
  - **Creative Phase:** Solidify future station location alternative options
  - **Evaluation Phase:** Prioritize/rank station alternatives
    - Define advantages/disadvantages, areas of risk, gaps, and expectations
  - **Development & Presentation Phases:** Develop the path forward and obtain endorsement

- Obtain consensus, align expectations, and build site-wide emergency response team approach

**DELIVERABLES**

- The team’s recommendations and path forward implementation plan
- Management endorsement of the teams recommendations and path forward
- Post-study Value Management Report (results and workshop support information)
AGENDA

Day 1, Tuesday, 10/21/14
7:00 - Welcome/Purpose, Safety Topic, and Introductions
  • Review Agenda, Guidelines and Expectations
  • Scope Statement Sheet and Opening Remarks
7:30 - Review/Begin Information Phase
  • Overview/present consolidation plan, and keywords
  • Define area response needs and milestones
  • Use parking-lot sheets, as required
9:15 - BREAK
9:30 - Continue Information Keywords
  • Identify needs, DSA/FHA credits, as a function of time
  • Use parking-lot sheets, as required
11:30 - LUNCH
12:30 - Complete Information Keywords
  • ENW, PNNL, AHJ, Standard of Cover,…. 
  • Use parking-lot sheets, as required
2:30 - BREAK
2:45 - Finish With Equivalency and Response Time
  • Use parking-lot sheets, as required
4:30 - Finish day 1 with status review and day 2 agenda

Day 2, Wednesday, 10/22/14
7:00 - Review Agenda, Safety Topic, Scope Statement Sheet and Status
7:20 - Complete Function Analysis Phase
  • Solidify the what, how, why, and when logic
  • Review/define areas of risk, gaps, cost and schedule drivers
9:15 - BREAK
9:30 - Review/Conduct Creative Phase
  • Solidify future station alternatives
  • Develop/apply Weighted Analysis Criteria
  • Define alternative advantages and disadvantages
11:30 - LUNCH
12:30 - Review/Conduct Evaluation Phase
  • Conduct alternative analysis matrix
    ➢ Prioritize/rank alternative options
2:30 - BREAK
2:45 - Review/Conduct Development Phase
  • Review/validate parking-lot information sheets
  • Develop the path forward implementation actions to proceed
4:00 - Conduct Management Briefing
  • Overview results and the path forward
  • Solicit inputs and enhancements
4:30 - Finish Workshop with a Round Robin
  • Last minute items and closing remarks
OPENING REMARKS

- Lots of consolidation work has gone into this effort
  1. Bench mark needs
  2. Three DOE Field Offices
- Need to factor all needs, e.g., 300A
  - As function of time
- Thank you for your support and active participation!
- Team briefing:
  - Need a plan to judiciously serve the community
  - Lots of experience → be objective; I don’t have history of the Site → be objective!
  - Be stewards and do it safely

GUIDELINES AND EXPECTATIONS

- Open and honest communication
  - Active listening
  - Have courage and consideration
- Be succinct → make your point!
  - Move forward → history to lessons
  - Identify facts versus perceptions
- Area response needs → North to South
  - As a function of time → 2014, 2018, 2021….
  - Facility status, needs, demo or operations
  - Define response needs and credits (DSA, FHA, etc.)
- WCH, CHPRC, WRPS, and BNI may leave after day 1, am or pm
- Then balance of keywords
  - AHJ, standard of cover, equivalency, and response time
- Key to success
  - Teamwork, your input, right plan
  - Communications
  - Focus on stations, needs, without facility design
  - Make a difference, and have some fun along the way!

CLOSING REMARKS

- We all stated our position
- Learned more about Hanford than over the last nine months
- We did in two days what usually would have been done in three-four days
- Thank you for your active participation and objectivity!
- Appreciated the willingness of DOE’s participation and they’re moving ahead to solve the problem
# VM STUDY ATTENDANCE ROSTER

October 21, and 22, 2014

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<td>Security and Emergency Services</td>
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<td>372-4007</td>
<td><a href="mailto:Joe.Christ@PNSO.Science.DOE.Gov">Joe.Christ@PNSO.Science.DOE.Gov</a></td>
<td>Pacific Northwest Site Office</td>
</tr>
<tr>
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<td>371-7755</td>
<td><a href="mailto:Jim.bixler@pnnl.gov">Jim.bixler@pnnl.gov</a></td>
<td>Strategic Projects Division</td>
</tr>
<tr>
<td>K.L. (Karl) Bohlander</td>
<td>371-7895</td>
<td><a href="mailto:Karl.bohlander@pnnl.gov">Karl.bohlander@pnnl.gov</a></td>
<td>Risk &amp; Decision Sciences</td>
</tr>
<tr>
<td>S.D. (Steve) Cooper</td>
<td>377-4649</td>
<td><a href="mailto:SDCooper@energy-northwest.com">SDCooper@energy-northwest.com</a></td>
<td>Fire Marshal</td>
</tr>
<tr>
<td>D.L. (Dan) Sours</td>
<td>372-1324</td>
<td><a href="mailto:Daniel_L_Sours@rl.gov">Daniel_L_Sours@rl.gov</a></td>
<td>Interface Management</td>
</tr>
<tr>
<td>S.C. (Stan) Wallace</td>
<td>373-5403</td>
<td><a href="mailto:Stanley_C_Wallace@rl.gov">Stanley_C_Wallace@rl.gov</a></td>
<td>Fire Protection/Industrial Safety</td>
</tr>
<tr>
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<td><a href="mailto:Daniel_J_Graham@rl.gov">Daniel_J_Graham@rl.gov</a></td>
<td>Fire Protection Engineering</td>
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<td>372-9962</td>
<td><a href="mailto:Connie.Krull@wch-rcc.com">Connie.Krull@wch-rcc.com</a></td>
<td>Project Services</td>
</tr>
<tr>
<td>A.J. (Andrew) Hill</td>
<td>371-2173</td>
<td><a href="mailto:ajhill@bechtel.com">ajhill@bechtel.com</a></td>
<td>WTP Fire Protection Program</td>
</tr>
<tr>
<td>P.K. Brockman</td>
<td>376-0297</td>
<td><a href="mailto:Peter_K_Brockman@rl.gov">Peter_K_Brockman@rl.gov</a></td>
<td>Site Services &amp; Int Management</td>
</tr>
<tr>
<td>J.D. (Jason) O'Connell</td>
<td>376-7801</td>
<td><a href="mailto:Jason_D_Oconnell@rl.gov">Jason_D_Oconnell@rl.gov</a></td>
<td>HFD Project Management</td>
</tr>
<tr>
<td>N.T. (Neal) Hara</td>
<td>371-7655</td>
<td><a href="mailto:Neal.Hara@pnnl.gov">Neal.Hara@pnnl.gov</a></td>
<td>Safety Engineering</td>
</tr>
<tr>
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<tr>
<td>A.J. (Ashley) Olsen</td>
<td>376-6393</td>
<td><a href="mailto:Ashley_J_Olsen@rl.gov">Ashley_J_Olsen@rl.gov</a></td>
<td>DWF&amp;RS NS&amp;L</td>
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<tr>
<td>Richard Harrington</td>
<td>376-3857</td>
<td><a href="mailto:Richard_A_Harrington@rl.gov">Richard_A_Harrington@rl.gov</a></td>
<td>Value Management</td>
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<tr>
<td>VL Ginger Kidder</td>
<td>376-7608</td>
<td><a href="mailto:Virginia_L_Kidder@rl.gov">Virginia_L_Kidder@rl.gov</a></td>
<td>Value Management</td>
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TEAM BRIEFING

AGENDA

3:00 -  Welcome/Purpose, Safety Topic, Introductions, and Agenda
  • Opening Remarks
  • Brief Value Engineering Process Overview
    – Streamlined Six-step Job Plan
    – Function Analysis System Technique (FAST) Diagram
    – Team and process dynamics
  • Review/Validate Scope Statement Sheet
    – Scope, objectives, and deliverables
    – Team members, full and part-time/support members
  • Identify and assign needed presentation and reference materials for the study
  • Define Management Briefing Invitees and Schedule
  • Determine final actions to proceed

4:15 -  Closing Remarks

OPENING REMARKS

• Thank you, your active participation is key!
  ➢ What is the future emergency response for Hanford?
    • A Consolidation Plan
      ➢ Numerous stakeholders
  ➢ Outcome — success
    1. Better understand your response needs
    2. Inputs to finalize the plan
      ➢ Going from 4 to 2 stations
  • Hanford Site is shrinking (footprint)
    ➢ HFD services the whole Site
    ➢ Appreciate your help
  • Be open to the alternatives
  ➢ Develop and execute the plan to Safely and Efficiently provide HFD Services

MATERIALS/PRESENTATIONS FOR VM STUDY

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<tr>
<td>1</td>
<td>Consolidation Plan Overview</td>
<td>Tom True – MSA</td>
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<td>2</td>
<td>Prime Contractors – Area Response Needs: 100A, 200E/W (600A), 400A, and 300A</td>
<td>Barbara May – WRPS</td>
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<td></td>
<td>Define facility response needs, DSA credits, as a function of time (e.g. 2014, 2018, and 2021)</td>
<td>Dan Graham – CHPRC</td>
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## TEAM BRIEFING ATTENDANCE ROSTER

**October 15, 2014**

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<tr>
<td>G.I. (Glenn) Goldberg</td>
<td>376-9552</td>
<td><a href="mailto:Glenn.goldberg@rl.doe.gov">Glenn.goldberg@rl.doe.gov</a></td>
<td>Security and Emergency Services</td>
</tr>
<tr>
<td>J.W. (Joe) Christ</td>
<td>372-4007</td>
<td><a href="mailto:Joe.Christ@PNSO.Science.DOE.Gov">Joe.Christ@PNSO.Science.DOE.Gov</a></td>
<td>Pacific Northwest Site Office</td>
</tr>
<tr>
<td>J.W. (Jim) Bixler</td>
<td>371-7755</td>
<td><a href="mailto:Jim.bixler@pnnl.gov">Jim.bixler@pnnl.gov</a></td>
<td>Strategic Projects Division</td>
</tr>
<tr>
<td>R. (Ron) Butler</td>
<td>377-4181</td>
<td><a href="mailto:RLBUTLER@energy-northwest.com">RLBUTLER@energy-northwest.com</a></td>
<td>Energy Northwest</td>
</tr>
<tr>
<td>D.L. (Dan) Sours</td>
<td>372-1324</td>
<td><a href="mailto:Daniel_L_Sours@rl.gov">Daniel_L_Sours@rl.gov</a></td>
<td>Interface Management</td>
</tr>
<tr>
<td>A.G. (Andrew) Minister</td>
<td>371-7902</td>
<td><a href="mailto:Andrew.Minister@pnnl.gov">Andrew.Minister@pnnl.gov</a></td>
<td>Fire Protection Engineer</td>
</tr>
<tr>
<td>S.C. (Stan) Wallace</td>
<td>373-5403</td>
<td><a href="mailto:Stanley_C_Wallace@rl.gov">Stanley_C_Wallace@rl.gov</a></td>
<td>Fire Protection/Industrial Safety</td>
</tr>
<tr>
<td>B.A. (Barb) May</td>
<td>376-2662</td>
<td><a href="mailto:Barbara_A_May@rl.gov">Barbara_A_May@rl.gov</a></td>
<td>Interface Management</td>
</tr>
<tr>
<td>D.J. (Daniel) Graham</td>
<td>373-1436</td>
<td><a href="mailto:Daniel_J_Graham@rl.gov">Daniel_J_Graham@rl.gov</a></td>
<td>Fire Protection Engineering</td>
</tr>
<tr>
<td>C.J. (Connie) Krull</td>
<td>372-9962</td>
<td><a href="mailto:Connie.Krull@wch-rcc.com">Connie.Krull@wch-rcc.com</a></td>
<td>Project Services</td>
</tr>
<tr>
<td>A.J. (Andrew) Hill</td>
<td>371-2173</td>
<td><a href="mailto:ajhill@bechtel.com">ajhill@bechtel.com</a></td>
<td>WTP Fire Protection Program</td>
</tr>
<tr>
<td>E.C. (Eric) Dawson</td>
<td>371-2058</td>
<td><a href="mailto:ecdawson@bechtel.com">ecdawson@bechtel.com</a></td>
<td>WTP Fire Protection</td>
</tr>
<tr>
<td>P.K. Brockman</td>
<td>376-0297</td>
<td><a href="mailto:Peter_K_Brockman@rl.gov">Peter_K_Brockman@rl.gov</a></td>
<td>Site Services &amp; Int Management</td>
</tr>
<tr>
<td>J.D. (Jason) O’Donnell</td>
<td>376-0871</td>
<td><a href="mailto:Jason_D_Oconnell@rl.gov">Jason_D_Oconnell@rl.gov</a></td>
<td>HFD Project Management</td>
</tr>
<tr>
<td>N.T. (Neal) Hara</td>
<td>371-7655</td>
<td><a href="mailto:Neal.Hara@pnnl.gov">Neal.Hara@pnnl.gov</a></td>
<td>Safety Engineering</td>
</tr>
<tr>
<td>C.W. (Craig) Walton</td>
<td>376-4015</td>
<td><a href="mailto:Craig_W_Walton@rl.gov">Craig_W_Walton@rl.gov</a></td>
<td>Emergency Services</td>
</tr>
<tr>
<td>Richard Harrington</td>
<td>376-3857</td>
<td><a href="mailto:Richard_A_Harrington@rl.gov">Richard_A_Harrington@rl.gov</a></td>
<td>Value Management</td>
</tr>
<tr>
<td>VL Ginger Kidder</td>
<td>376-7608</td>
<td><a href="mailto:Virginia_L_Kidder@rl.gov">Virginia_L_Kidder@rl.gov</a></td>
<td>Value Management</td>
</tr>
</tbody>
</table>