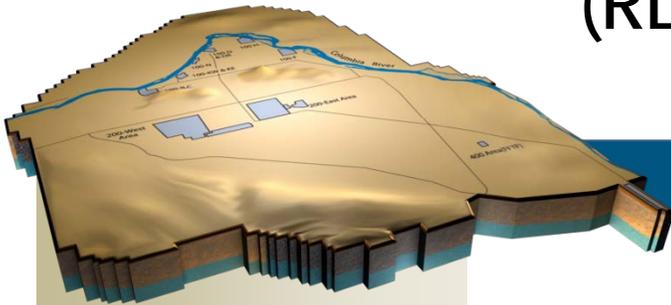


# Section D

## Soil and Groundwater Remediation Project (RL-0030)



### Monthly Performance Report

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June 2011  
CHPRC-2011-05, Rev. 0  
Contract DE-AC06-08RL14788  
Deliverable C.3.1.3.1 - 1



Aerial view of the HX Groundwater Treatment Facility taken in June 2011

## PROJECT SUMMARY

### American Recovery and Reinvestment Act (ARRA)

Progress through the end of the fiscal month June is summarized in the table below.

| Activity  | June    |           | Cumulative |           |
|---|---------|-----------|------------|-----------|
|   | Planned | Completed | Planned    | Completed |
| Well Drilling (number of wells) -303  | 0       | 0         | 303        | 303       |
| Well Decommissioning (# of wells) -280  | 12      | 24        | 243        | 269       |
| 100 DX Packaging and Transportation (P&T)<br>– Construction/Startup (percent) | -       | -         | 100        | 100       |
| 200 West P&T – Final Design (percent)   | -       | -         | 100        | 100       |
| 200 West P&T – Construction (percent)   | 9       | 11        | 80         | 82        |
| 200 West P&T – Testing/Startup (percent)                                      | 9       | 6         | 76         | 71        |

### Base

Base work included pump-and-treat operations, Comprehensive Environmental Response, Compensation, and Liability Act of 1980 (CERCLA) remedial processes, and documentation for the River Corridor and Central Plateau. Sampling and groundwater treatment completed in June includes the following:

- 202 well locations were sampled with a total of 883 samples being collected
- 45 aquifer tube samples collected from 25 tubes at 19 locations
- 16.9M gallons groundwater treated by ZP-1 treatment facility
- 18.6M gallons groundwater treated by KX treatment facility
- 6.1M gallons groundwater treated by KW treatment facility
- 4.4M gallons groundwater treated by KR-4 treatment facility
- 18.4M gallons groundwater treated by DX treatment facility
- 64.45M gallons of groundwater treated total

## EMS Objectives and Target Status

| Objective#                | Objective  | Target  | Due Date                 | Status                                     |
|---------------------------|--|---|--------------------------|--|
| <b>11-EMS-SGWR-OB1-T1</b> | Take actions necessary to protect the Columbia River by fiscal year (FY) 2012  | Treat 500,000,000 gallons of 100 Area (D, H & K Area) groundwater   | 9/30/11                  | On schedule                                |
|                           |  | Review and tally total number of gallons treated  | Monthly                  | Treated 482.2 M gal FY2011 through 6/30/11 |
| <b>10-EMS-SGWR-OB2-T1</b> | Construct a new GW treatment facility that satisfies the P&T component of the 200-ZP-1 Operable Unit (OU) Record of Decision (ROD) selected remedy | Construct new 200 West Area P&T facility to remediate GW which was impacted from past plutonium production operations | 12/31/11                 | On schedule                                |
|                           |  | Start construction of road crossings  | 11/30/09                 | Complete (11/2/09)                         |
|                           |  | Start early civil construction  | 3/30/10                  | Complete (3/19/10)                         |
|                           |  | Start construction of GW extraction buildings   | 3/30/10                  | Complete (3/19/10)                         |
|                           |  | Complete treatment facility construction  | 12/31/11                 | On schedule                                |
| <b>10-EMS-SGWR-OB4-T1</b> | Reduce Project Waste Generation  | Track & quantify project cost savings from on-going waste reduction initiatives                                       | 1/31/11                  | Closed (2/10/11)                           |
|                           |  | Track, quantify & report on drill cuttings RTEd in lieu of disposal at ERDF   | 30 days after CY Qtr-end | Complete                                   |
|                           |  | Track, quantify & report on use of ERDF boxes in lieu 55-gallon drums   | 30 days after CY Qtr-end | Complete                                   |
|                           |  | Track, quantify & report on purgewater generation avoidance   | 30 days after CY Qtr-end | Complete                                   |

## TARGET ZERO PERFORMANCE

|  | CM<br>Quantity | Rolling<br>12 Month | Comment  |
|--|----------------|---------------------|--|
| Days Away,<br>Restricted or<br>Transferred | 0              | 2                   | N/A  |
| Total<br>Recordable<br>Injuries            | 0              | 13                  | N/A  |
| First Aid<br>Cases                         | 9              | 114                 | <p>6/3/11 – Employee was in awkward position working with grinder, in attempt to control grinder cut index finger. 22005 (EPC)</p> <p>6/6/11 – Employee’s foot slipped and felt a strain in lower back 22012 (EPC)</p> <p>6/9/11 – As employee opened 5 gallon container of gasoline an unknown amount sprayed his face and chest. Coworkers immediate washed face and eyes. 22024 (EPC)</p> <p>6/16/11 – Pipefitter strained back during grinding work in an awkward position. 22044 (EPC)</p> <p>6/20/11 – Employee felt back spasms and was transported to Kadlec Emergency. 22056 (EPC)</p> <p>6/23/11 - Employee’s vision was blocked by a bucket he was carrying with both hands and twisted his ankle on a rock. 22060 (EPC)</p> <p>6/28/11 – Employee bumped his left knee on the edge of a lift-gate. 22069 (EPC)</p> <p>6/29/11 – Employee bumped left hip and thigh on aluminum stairway handrail. 22075 (EPC)</p> <p>6/29/11 – Employee received insect bite to right wrist. 22076 (EPC)</p> |
| Near-Misses                                | 0              | 1                   | N/A  |

## KEY ACCOMPLISHMENTS

### ARRA - GW CAPITAL ASSET

| Drilling                              | June    |           | Cumulative |           |
|---------------------------------------|---------|-----------|------------|-----------|
|                                       | Planned | Completed | Planned    | Completed |
| M-24 -5 wells                         | 0       | 0         | 5          | 5         |
| 200-ZP-1 West P&T Expansion -17 wells | 0       | 0         | 17         | 17        |
| Drilling Total                        | 0       | 0         | 22         | 22        |

### Engineering Projects and Construction (EPC) Projects in Support of Soil and Groundwater Remediation Project (S&GRP) - ARRA

- 200 West Area Groundwater Treatment Facility –Construction is 82% complete, with approximately 200 craft working to keep the installation of mechanical, electrical and process controls on schedule. Continued on schedule execution of Construction Acceptance Test (CAT) for the extraction wells, extraction transfer buildings #1 and #2 and injection transfer building #1.

### EPC Projects in Support of S&GRP – Base

- 100-HX Groundwater Treatment Facility – Equipment installation in the Treatment and Transfer Buildings is essentially complete with only punch-list items remaining. All ten Construction Acceptance Test (CAT) procedures have been approved and CAT testing is underway with flushing of the HDPE lines and electrical checks of installed components.

### ARRA - GW OPERATIONS

#### Well Drilling and Decommissioning – ARRA

|  | June    |           | Cumulative |           |
|--|---------|-----------|------------|-----------|
|  | Planned | Completed | Planned    | Completed |
| KR-4 Remedial Investigation/Feasibility Study (RI/FS) – 13 wells | 0       | 0         | 13         | 13        |
| 100-NR-2 Barrier Emplacement – 171 wells                         | 0       | 0         | 171        | 171       |
| 100-HR-3 H Area Remedial Process Optimization (RPO) – 40 wells   | 0       | 3         | 40         | 40        |
| 100-HR-3 D Area RPO – 30 wells                                   | 0       | 0         | 30         | 30        |
| 200-BP-5 “K” Well – 1 well                                       | 0       | 0         | 1          | 1         |
| 200-BP-5 “L” and “M” Well – 2 wells                              | 0       | 0         | 2          | 2         |
| 100-BC-5 RI/FS – 10 wells  | 0       | 0         | 10         | 10        |
| 100-FR-3 – 3 wells   | 0       | 0         | 3          | 3         |
| 300 FF-5 RI/FS – 11 wells  | 0       | 0         | 11         | 11        |
| Drilling Total   | 0       | 3         | 281        | 281       |
| Decommissioning Total  | 12      | 24        | 243        | 269       |

### BASE - GW OPERATIONS

#### Environmental Strategic Planning:

- Prepared ECF-HANFORD-11-0140 Rev. 0, “Corrective Analysis of Hanford Soil Inventory Model (SIM 2005) for 300 Area Waste Sites” in response to a request from the TC&WM EIS team.
- Received comments from the EPA and Ecology on the “Regulatory Basis and Implementation of a Graded Approach to Evaluation of Groundwater Protection”, DOE/RL-2011-50, Draft A. Comment incorporation is ongoing.

#### Integration Management:

- Coordinated DOE/multi-contractor Deep Vadose Zone technical meeting on geophysical work that has been performed in the Central Plateau over the past 3 years.
- Completed a meeting with DOE and the regulatory agencies to explain the modeling assumptions being used in the 100 Area Decision Documents.

#### Document Review & Standardization

- Completed coordination and submittal of EP&SP document reviews and consolidated responses

for 10 environmental documents.

- Completed action items identified during the Critical Assessment of the RI/FS Work Plan for the Outer Area of the Central Plateau.
- Created a new Sampling Analysis Plan (SAP) annotated outline in cooperation with SGWP personnel.

### **River Corridor**

#### **100-BC-5 Operable Unit - Base**

- The internal review of the RI/FS report internal draft was completed, and the resulting comments are being incorporated into the decisional draft scheduled for RL review starting in late July. Resolution to comments on the decisional draft RI/FS for KR-4 are being reviewed for applicability and incorporated into the BC-5 RI/FS report.
- All RI/FS field work is complete.

#### **100-KR-4 Operable Unit - Base**

- Transmitted for RL review the *Proposed Plan for Remediation of the 100-KR-1, 100-KR-2, and 100-KR-4 Operable Units*, Decisional Draft, on June 23; comments due July 8.
- Received partial comments from RL on *Remedial Investigation/Feasibility Study for the 100-KR-1, 100-KR-2, and 100-KR-4 Operable Units*, Decisional Draft, on June 27, 2011. Comments are being evaluated and categorized to support tracking for resolution. Remaining comments are anticipated no later than July 5, 2011. Operating KR-4, KW, and KX systems with 55 kg mass removed and 291 million gallons treated fiscal year to date.
- Reached RUM and water sample collected at third (C7697/199-K-197) of four Phase 3 RPO wells. Well design prepared and ready for construction following completion of geophysical logging.

#### **100-NR-2 Operable Unit - Base**

- RI/FS well drilling activities initiated at well C8191 and resumed at well C8184. A total of 2 out of 8 wells have been completed.
- All other RI/FS field work is complete.
- The high-river stage performance monitoring at the existing apatite Permeable Reactive Barrier was completed.

#### **100-HR-3 Operable Unit - Base**

- DR-5 wells were realigned to the DX system, and are now operational.

#### **100-FR-3 Operable Unit - Base**

- The internal review of the RI/FS report internal draft was completed, and the resulting comments are being incorporated into the decisional draft scheduled for RL review starting in mid August.
- All RI/FS field work is complete.

### **Central Plateau**

#### **200-UP-1 Operable Unit – Base**

- Drilling was initiated at extraction well C8097 near the S-13 crib. The installation of water level transducers in 8 existing wells for the purpose of monitoring SSX P&T performance was completed and baseline monitoring was initiated.

#### **200-ZP-1 Operable Unit - Base**

- System is online pumping water at 390 gpm

- The 2010 annual performance summary report has been revised based on RL review comments and is currently being released.
- Injection well C8064 is at 93 feet and injection well C8065 is at total depth. Injection well C8066 is at 342 feet.
- FY 2012 groundwater modeling runs are complete and will be presented to RL.

#### **Deep Vadose Zone - Base**

- Completed the Deep Vadose Zone Public Information Exchange for Remediation Technologies on June 7, 2011. The Deep Vadose Zone 101 Module and Remediation Technology Tables are posted on the RL website.
- Completed the Data Quality Objective (DQO) scoping session for the T Area waste sites with Ecology on June 14, 2011.
- Participated in the EM-Technical Expert Group review of the Deep Vadose Zone Applied Field Research Initiative on June 27 – 28, 2011.
- The Desiccation Test was completed on June 30, 2011. The project team is now working on demobilization of the active portion of the test and has initiated post operation rebound testing. The project team has also initiated preparation of the test report which is due June 30, 2012 (TPA M-015-110D).

#### **200-CB-1 - Base**

- Completed internal review of the work plan and sampling and analysis plan. Comment incorporation is underway.
- Provided comments on the draft Part B permit developed by Ecology.

## **MAJOR ISSUES**

No major issues to report this month.

# RISK MANAGEMENT STATUS

**Unassigned Risk**  
**Risk Passed**  
**New Risk**

 Working - No Concerns  
 Working - Concern  
 Working - Critical

 Increased Confidence  
 No Change  
 Decreased Confidence

| Risk Title  | Risk Strategy/Handling   | Assessment  |  | Comments  |
|---|--|---|--|---|
|   |  | Month   | Trend  |   |
| <b>SGW-001: 100-D Treatment Technology Selection Change</b>   | Review draft RD/RAWP with regulators; maintain close interface to minimize impact of changes.  |    |    | No significant issues.  |
| <b>SGW-050: Regulatory Strategy for Decision Docs</b>   | Continue to support RL in strategy negotiations with Agencies.   |    |    | Issue regarding waste to be included in 200-IS-1 vs. 200-EA-1 and 200-WA-1 will be addressed in workshop with Agencies in July-August 2011.   |
| <b>SGW-069: 100-HR-3 ISRM Barrier Amendment - Hexavalent Chromium Continues to Move Through Barrier</b> | Monitor zero valence iron injection; add four wells to P&T.  |    |    | DOE and Ecology have agreed to the strategy and signed a memorandum documenting the changes as insignificant. For wells will be used to supplement the barrier and capture down-gradient chromium. DX system is on line with extraction wells down gradient of the ISRM barrier.  |
| <b>SGW-080: 100-BC-5 Pump and Treat Required</b>  | This risk is accepted as written and will be monitored throughout work execution.  |    |    | EPA concurred that need for pump and treat will be evaluated as part of RI/FS process; existing sample data indicate a treatment system may be required as part of a final action under the future Record of Decision.  |
| <b>SGW-081: 100-FR-3 Pump and Treat Required</b>  | This risk is accepted as written and will be monitored throughout work execution.  |    |    | EPA concurred that need for pump and treat will be evaluated as part of RI/FS process but based upon current sample data, the need for treatment is not considered likely.  |
| SGW-008B: Regulatory Document Comments for 100-HR-3   | Routine meetings are being held with regulators during document development; no additional mitigation is feasible.   |    |    | Met on June 30, 2011 and work is progressing on the RI/FS Report.   |
| SGW-008U: Regulatory Document Comments for 200-SW-1/2   | Routine meetings are being held with regulators during the SW-2 Work Plan development; no additional mitigation is feasible. For SW-1, all deliverable have been given to RL; no additional funding is authorized in FY2011.   |   |   | Four SW-1 Agency workshops have been completed and the NRDWL/SWL closure plan was revised to incorporate Ecology comments. Ecology approval of this final closure plan is pending their final review of the revised plan and RL's NEPA determination.   |
| SGW-016: 300-FF-5 Infiltration Barrier Treatability Test  | Should the scale of the remediation technology not be cost effective, a technical practicality argument will be presented for site closure   |  |  | After multiple unsuccessful attempts to get the infiltration gallery functional, PNNL has developed a parallel approach, looking for shallow test sites in other locations and alternative emplacement technology development. A joint CHPRC/PNNL path forward has been developed and vetted by RL and EPA. Infiltration work has been deferred to FY12 - this does not support development of the PP or ROD. It is best positioned as a Treatability Test specified in the ROD or abandoned as part of a Technical Impracticability argument in the RI/FS. |
| SGW-017 - Groundwater Flow Less Than Planned - 200 West P&T (Phase I)                                   | Project has accelerated drilling of 6 injection wells to ensure adequate injection capacity.   |  |  | Hydraulic analysis was performed and as a result, project is revising pump header configuration to accommodate startup and operations at ITB #1 and ITB #2.   |
| SGW-025: Industrial Accident During Drilling  | Subcontractors are evaluated on safety performance prior to contract award and are required to work under CHPRC safety procedures, including using appropriate safety equipment and conducting pre-job briefings. No further mitigation is warranted. Risk is accepted.  |  |  | No issues or incidents this month. ARRA funded wells have been completed.   |
| SGW-031A: P&T Design Changes - 200 West   | Identify required design changes early in the process to minimize schedule impact. Work closely with the client and regulators to minimize impact to schedule. Incorporate design changes quickly to minimize cost impacts and avoid rework. Supplement Eng/QA/QC support and contracts for special inspection so as to finalize engineering requirements. |  |  | The baseline has incorporated the realized risk from the final issuance of the "issued for construction" drawings. As the scope is being constructed in the field the impact of design changes continues to be monitored.   |

## RISK MANAGEMENT STATUS – Cont.

**Unassigned Risk**  
**Risk Passed**  
**New Risk**

 Working - No Concerns  
 Working - Concern  
 Working - Critical

 Increased Confidence  
 No Change  
 Decreased Confidence

| Risk Title   | Risk Strategy/Handling   | Assessment  |   | Comments   |
|--|--|---|---|--|
|  |  | Month   | Trend   |  |
| SGW-037: 100-NR-2 Infiltration Gallery Pilot Test  | Risk accepted without mitigation.  |    |    | Alternative technology (jet injection) with higher likelihood of success has been successfully pilot tested and is being optimized for larger-scale implementation under an approved design optimization study (DOS) (this optimization work is currently being deferred to FY12 or beyond due to RL funding prioritization). Jet-injection technology will be pursued to treat the upper vadose zone (as currently proposed in a Draft revision to the NR-2 RD/RA Work Plan for Interim Action, submitted to the regulators on March 25, 2011). With Jet Injection appearing to be the preferable delivery method for treating the upper vadose zone, the infiltration gallery work is likely to be discontinued. |
| SGW-041, Maintenance on the groundwater pump and treat systems is higher than planned due to reduced system reliability. | Shutdown of the older facilities as new facilities are brought on line.  |    |    | Some groundwater pump and treat systems have been in operation for more than 10 years. As the systems age, the maintenance costs can be expected to increase slightly. There is a risk that the aging systems will begin to experience additional downtime and require increased maintenance, including equipment change outs. The probability of this risk occurring increases as the systems age. The probability for the existing 200-ZP-1, 200-UP-1, 100-KR-4, TX/TY (excluding the expansion), systems requiring maintenance beyond the planned maintenance budget is moderate. The risk from the existing ZP-1 facility will be eliminated once that building is shut down in FY2012.                        |
| SGW-051: Compressed Schedule for 200 West P&T Project Due to TPA Commitment  | Project team will work closely with RL and the regulators to minimize the potential of unexpected design changes and to implement any required design changes quickly so as to minimize the schedule impact. Additional funding will be required to mitigate these issues. Contractor schedule compression will be supplemented with appropriate detail over time. Design schedule has been extended and has overlapped construction and no constructability reviews have occurred. Include funds to account for changes and claims in budget, compare design and estimate costs for changes, perform phased constructability reviews. Project is already exploring options to accelerate schedule more so than what was delivered in general contractor's proposal. |  |  | Agreed upon completion criteria with RL and Regulators. Progress is consistent but delays associated with the issuance of IFC have been experienced. Project is utilizing additional resources and working overtime to mitigate this risk. The concern is reviewed daily with the General Contractor to recover critical path work activities.   |
| SGW-056A: 300-FF-5 Infiltration Not Feasible for Wide-Spread Application   | An infiltration test is being performed at 300-FF-5 for the contaminants of concern.   |  |  | Alternatives to widespread application of infiltration from the surface are being developed in parallel with searching for candidate sites for surface infiltration tests. None of the candidate technologies can be tested in time to support the PP or ROD. Alternative technology testing has been deferred to FY12. Recommend focusing available funding on one technology approach with a Technical Impracticability argument for the OU should it not prove feasible.  |
| SGW-065: Bio/Chemical Remediation Fails  | A design test is being planned for 100-D Area. This should eliminate some of the uncertainties with the potential side effects.  |  |  | Well alignment for the test was revised to accommodate new modeling results and increase potential performance for the pump and treat system. The bioremediation TTP has been postponed until FY13, since the TTP is a post-ROD design test, and new data is not yet required to make remedial decisions in support of the FS.   |
| SGW-082, BC/FR RI Impacts  | Delays in preparing earlier River Corridor RI/FS/PP documents impact scheduled for 100-BC-5 and 100-FR-3 documents.  |  |  | The 100-BC-5 and 100-FR-3 RI/FS and Proposed Plan documents are scheduled to follow the preparation of the 100-HR-3, 100-KR-4, and 300-FF-5 documents. Delays in the development of documents for those operable units could impact the ability to meet the TPA schedule for BC-5 and FR-3. Because of current schedule issues associated with 100-HR-3 and 100-KR-4, there is a low probability the BC-5 and FR-3 schedules will be impacted.   |

## RISK MANAGEMENT STATUS – Cont.

**Unassigned Risk**  
**Risk Passed**  
**New Risk**

 Working - No Concerns  
 Working - Concern  
 Working - Critical

 Increased Confidence  
 No Change  
 Decreased Confidence

| Risk Title   | Risk Strategy/Handling  | Assessment  |   | Comments   |
|--|---|---|---|--|
|  |   | Month   | Trend   |  |
| SGW-083, River Corridor Characterization                     | Additional characterization wells are required to support the development of an RI/FS and Proposed Plan for the River Corridor groundwater operable units or to investigate findings from WCH data gathering.   |    |    | WCH is gathering data in and along the river. This data could result in the need to install additional characterization wells in the River Corridor operable units. Information and conclusions from WCH risk assessments is raising questions regarding the Riparian Zone and Columbia River component human health risk assessment.                  |
| SGW-091: Material Procurement - 200 West P & T               | Work closely with the BTR to ensure timely placement of procurement contracts, including any necessary expediting. Supplement engineering support for RCI submittal resolution, on-site focus review including vendor participation as needed. Provide incentives for vendors to compress schedule. |    |    | All major long lead equipment (LLE) has been received and accepted in the field. Minor interferences have been encountered and mitigating actions have been employed.  |
| SGW-120: 200 West Safety Considerations                      | CHPRC oversight including site safety, IH, and construction management will work with the contractor on a daily basis to reduce this risk potential.  |    |    | Successful completion of the project is contingent upon ongoing implementation of safety and health practices. Project will continue to practice flow-down of DOE and CHPRC safety requirements and standards.   |
| SGW-098: 200-W P&T - Schedule Impacts Due to Scope Increases | Contractor will hold periodic discussions with client and regulators to maintain a clear understanding of scope changes. As these issues are identified, they will be listed with other emerging issues. At this point, further mitigation tactics will be determined.                              |    |    | The project is working closely with subcontractors to understand and work through impacts from design changes and maintain the accelerated project schedule. OT and additional shifts have been utilized in certain areas to ensure schedule requirements are met. Work continues to support software, simulator, procedures, and CAT/ATP development. |
| SGW-101, 100-NR-2 Strontium Downstream From Barrier          | Tritium contaminants located downstream from the apatite barrier must be treated.   |   |   | The 100-NR-2 apatite barrier is designed to control and treat the strontium in the soil and groundwater to prevent migration to the river. There is a very low probability risk that strontium that is downstream from the barrier will require additional treatment.  |
| SGW-108J: 200-UW-1 Increased Characterization Required       | Incorporate additional deep boreholes into the baseline.  |  |  | This risk has been realized and the project is working the issue. Scope was included in Mod95 Proposal (but rejected); tentative period for funding is FY2013.   |
| SGW-108L: 200-IS-1 Increased Characterization Required       | Work closely with the regulators to expedite resolution of characterization requirements in order to minimize cost and schedule impacts.  |  |  | Disagreement regarding lead regulatory agency authority and acceptability of existing characterization; expectation that additional characterization will be required.   |
| SGW-117, OPP: 100-KR-4 Resin Changes                         | The opportunity exists to replace the 100-KR-4 pump and treat systems resins with the SIR-700 resin, thus reducing the life-cycle operating costs for the pump and treat system.  |  |  | The SIR-700 resins have been successfully tested at 100-HR-3. Minor modifications to the resin or P&T systems may enable the SIR-700 resin to be successfully used in the 100-KR-4 pump and treat systems. This is a likely probability opportunity.   |

## PROJECT BASELINE PERFORMANCE

### Current Month

(\$M)

| WBS 030/RL-0030<br>Soil and Groundwater Remediation | Budgeted<br>Cost<br>of Work<br>Scheduled | Budgeted<br>Cost<br>of Work<br>Performed | Actual<br>Cost<br>of Work<br>Performed | Schedule<br>Variance<br>(\$) | Schedule<br>Variance<br>(%) | Cost<br>Variance<br>(\$) | Cost<br>Variance<br>(%) |
|---|--|--|--|------------------------------|-----------------------------|--------------------------|-------------------------|
| ARRA RL-0030.R1.1 GW Capital Asset                  | 11.9                                     | 11.5                                     | 10.2                                   | (0.3)                        | -2.9                        | 1.3                      | 11.6                    |
| ARRA RL-0030.R1.2 GW Operations                     | 5.0                                      | 5.7                                      | 6.8                                    | 0.7                          | 14.1                        | (1.1)                    | -20.1                   |
| <b>ARRA Total</b>                                   | <b>16.8</b>                              | <b>17.2</b>                              | <b>17.0</b>                            | <b>0.4</b>                   | <b>2.2</b>                  | <b>0.2</b>               | <b>1.1</b>              |
| <b>Base</b>   | <b>17.4</b>                              | <b>14.9</b>                              | <b>12.1</b>                            | <b>(2.5)</b>                 | <b>-14.3</b>                | <b>2.8</b>               | <b>18.9</b>             |
| <b>Total</b>  | <b>34.2</b>                              | <b>32.1</b>                              | <b>29.1</b>                            | <b>(2.1)</b>                 | <b>-6.2</b>                 | <b>3.0</b>               | <b>9.4</b>              |

Numbers are rounded to the nearest \$0.1M.

### ARRA

#### CM Schedule Performance: (+\$0.4M/+2.2%)

Current month schedule variances that exceed thresholds are as follows:

#### ARRA RL-0030.R1.1 GW Capital Asset (-\$0.3M)

##### 200-ZP-1 OU (-\$0.3M)

200W P&T construction is performing ahead of the baseline schedule, the negative Schedule Variance (SV) in the current month (CM) is the result of previously completed work with BCWS being realized in the CM

#### ARRA RL-0030.R1.2 GW Operations (+\$0.7M)

Current month schedule variances that exceed thresholds are as follows:

##### 200-ZP-1 OU (+\$0.7M)

200W P&T construction has completed business information modeling and achieved an early start on installation of heat trace resulting in a positive CM SV.

#### CM Cost Performance: (+\$0.2M/+1.1%)

The primary contributors to the current month positive cost variance that exceed the reporting thresholds are as follows:

#### ARRA RL-0030.R1.1 GW Capital Asset (+\$1.3M)

##### 200-ZP-1 OU (+\$1.3M)

200W P&T construction has a positive CM Cost Variance (CV) due to efficiencies experienced during installation of well rack instrumentation and procurement of fiber optic/electrical cable.

#### ARRA RL-0030-R.1.2 GW Operations (-\$1.1M)

##### PBS RL-30 G&A and Direct Distributables (-\$1.2M)

The negative cost variance is discussed in Appendix C.

**Base****CM Schedule Performance (-\$2.5M/-14.3%)**

The primary contributors to the negative schedule variance that exceed the reporting thresholds are as follows:

**Drilling (-\$0.6M)**

Drilling of ZP-1 wells was delayed due to a broken 16" casing, shipment delays in receiving the under reamer tool for the 12" casing, and nesting of a protected bird species in the mast of one of the rigs. It is anticipated that some of the ZP-1 drilling will slip into FY2012.

**100 HR-3 Operable Unit (-\$0.8M)**

100HX P&T construction has performed work ahead of schedule, the CM negative SV is the result of realizing BCWS in the CM for work completed in previous periods.

**200-ZP-1 Operable Unit (-\$0.5M)**

200W P&T CM SV of (-\$0.3M) due to delays associated with sludge stabilization subcontractor submittals, fair cost estimates, award of contract and inability to obtain key resources such as millwrights.

**CM Cost Performance (+\$2.8M/+18.9%)**

The primary contributors to the cost variance that exceed the reporting thresholds are as follows:

**Integration and Assessments (+\$0.4M)**

Less support required to Central Plateau Strategy development due to changes in requirements. This positive variance will continue through FY11.

**200-UP-1 OU (+\$0.9M)**

Current month positive cost variance is primarily associated with implementation of AWA-030-11-015R0 Revise NTE on 200-UP-1 OU scope per Contract Mod 166. Additional BCWS and current period point adjustments for changes in S-SX work scope.

**300-FF-5 Operable Unit (+\$0.3M)**

Remedial investigation sampling work was performed for less than planned. Overall contract to date cost variance for this WBS is slightly positive.

## Contract-to-Date (\$M)

| WBS 030/<br>RL-0030<br>Soil and Groundwater<br>Remediation | Budgeted<br>Cost<br>of Work<br>Scheduled | Budgeted<br>Cost<br>of Work<br>Performed | Actual<br>Cost<br>of Work<br>Performed | Schedule<br>Variance<br>(\$) | Schedule<br>Variance<br>(%) | Cost<br>Variance<br>(\$) | Cost<br>Variance<br>(%) | Budget at<br>Completion<br>(BAC) | Estimate at<br>Completion<br>(EAC) | Variance at<br>Completion<br>(VAC) |
|--|--|--|--|------------------------------|-----------------------------|--------------------------|-------------------------|----------------------------------|------------------------------------|------------------------------------|
| <b>ARRA RL-0030.R1.1<br/>GW Capital Asset</b>              | 148.4                                    | 154.0                                    | 158.0                                  | 5.5                          | 3.7                         | (4.0)                    | -2.6                    | 175.0                            | 175.0                              | 0.0                                |
| <b>ARRA RL-0030.R1.2<br/>GW Operations</b>                 | <u>78.2</u>                              | <u>78.8</u>                              | <u>75.0</u>                            | <u>0.7</u>                   | 0.9                         | <u>3.8</u>               | 4.9                     | <u>92.1</u>                      | <u>89.3</u>                        | <u>2.8</u>                         |
| <b>ARRA Total</b>  | <b>226.6</b>                             | <b>232.8</b>                             | <b>233.0</b>                           | <b>6.2</b>                   | <b>2.7</b>                  | <b>(0.2)</b>             | <b>-0.1</b>             | <b>267.1</b>                     | <b>264.3</b>                       | <b>2.8</b>                         |
| <b>Base</b>  | <u>375.2</u>                             | <u>374.0</u>                             | <u>378.0</u>                           | <u>(1.2)</u>                 | -0.3                        | <u>(4.0)</u>             | -1.1                    | <u>1,284.0</u>                   | <u>1,224.4</u>                     | <u>59.7</u>                        |
| <b>Total</b>   | <b>601.8</b>                             | <b>606.8</b>                             | <b>611.0</b>                           | <b>5.0</b>                   | <b>0.8</b>                  | <b>(4.2)</b>             | <b>-0.7</b>             | <b>1,551.1</b>                   | <b>1,488.7</b>                     | <b>62.5</b>                        |

Numbers are rounded to the nearest \$0.1M.

### ARRA

#### CTD Schedule Performance: (+\$6.2M/+2.7%)

Major variances are discussed below.

#### ARRA RL-0030.R1.1 GW Capital Asset (+\$5.5M)

##### 200-ZP-1 Operable Unit (+\$5.5M)

200W P&T positive schedule variance is the result of managing the primary contractor to an accelerated completion date.

#### ARRA RL-0030.R1.2 GW Operations (+\$0.7M)

##### 200-ZP-1 Operable Unit (+\$0.7M)

200W P&T CM positive SV is due to early completion of business information modeling and early start on installation of heat trace

#### CTD ARRA Cost Performance: (-\$0.2M/-0.1%)

The primary contributors to the ARRA CTD cost variance that exceed the reporting thresholds are:

Major variances are discussed below.

#### ARRA RL-0030.R1.1 GW Capital Asset (-\$4.0M)

##### 200-ZP-1 Operable Unit (-\$2.9M)

200W P&T construction negative CTD CV is due to modifications in design of Long Lead Equipment (LLE) procurements, project support resources being utilized above planned levels and pending cost transfers to R1.2 subproject associated with BCR-R30-11-003R0.

##### 100 HR-3 Operable Unit (-\$0.8M)

The negative cost variance for 100DX is the result of increased installation costs on the pH adjustment system, the impacts of weather on completing construction punch-list items, and the Acceptance Test Plan for the facility/process.

#### ARRA RL-0030.R1.2 GW Operations (+\$3.8M)

##### Drilling (+\$2.4M)

The positive cost variance is due to efficiencies and savings obtained in drilling for 100-NR-2 and 200-BP-5 wells. Cost efficiencies have been obtained through an aggressive drilling schedule with savings in support personnel and faster drilling methods. Well decommissionings have also been completed for less than planned.

Regulatory Decision and Closure Integration (+\$1.7M)

The positive cost variance is primarily due to completing work scope more efficiently than planned, primarily in the areas of multi-incremental sampling (using existing documentation and direct haul rather than staging), and borehole drilling and landfill characterization (competitive subcontracting of drilling support and efficient field support).

Ramp-up and Transition (-\$2.0M)

The negative cost variance was driven by increased engineering, project support, procurement, site development and the installation of the ARRA Mobile Offices and an increase in the Project Services Distribution to RL-30.

PBS RL-30 UBS, G&A, and DD (+\$0.9M)

The positive cost variance is discussed in Appendix C.

**Base****CTD Schedule Performance (-\$1.2M/-0.3%)**

The primary contributors to the Base CTD schedule variance that exceed the reporting thresholds are:

Drilling (-\$1.2M)

Primary contributor to the CTD schedule variance is ZP-1 well drilling activities due to a broken 16" casing, shipment delays in receiving the under reamer tool for the 12" casing, and nesting of a protected bird species in the mast of one of the rigs. It is anticipated that some of the ZP-1 drilling will slip into FY2012.

100 HR-3 Operable Unit (+\$2.6M)

HX construction activities for Procure/Install Equipment, Distribution of Electricity and Piping, and Transfer Building Construction have been performed ahead of schedule to support the completion of construction activities and acceptance testing by September 2011. The project is currently forecast to complete ahead of baseline schedule.

**CTD Cost Performance (-\$4.0M/-1.1%)**

Primary contributors to the CTD negative cost variance that exceed the reporting thresholds are as follows:

Integration & Assessments (+\$3.3M)

Primary drivers for this positive cost variance are as follows:

- Less subcontractor support required for Central Plateau strategy development and integration
- Sample Management and Reporting has performed work scope more efficiently than planned
- Less cleanup document reviews were required than originally planned, requiring less contract support. Also efficiencies/savings were realized in establishing document templates, reviewing procedures, and software procurements.

100-KR-4 OU (-\$2.2M)

The unfavorable cost variance has resulted from increased analytical cost and use of additional resources to expedite the remedial investigation sampling and the accompanying RI/FS report efforts. Additional risk assessment and modeling costs have been included in the forecast. The negative cost variance will continue through preparation of Draft A of the RI/FS report.

100-NR-2 OU (+\$1.7M)

Chemical treatment and maintenance scope, jet grouting pilot test work, RI/FS Work Plan and Interim Proposed Plan Reporting were performed more efficiently than planned leading to the positive cost variance.

100 HR-3 Operable Unit (-\$2.5M)

Primary contributors to the negative cost variance are as follows:

- 100 DX - extensive effort required to design the pH adjustment system, cost overruns in completing the OU Remedial Process Optimization studies.
- 100 DX unplanned modifications on the system after completion of construction and higher than expected cost to complete acceptance test plan and the operational test plan
- Cost of realigning wells from DR-5 to 100 DX
- 100 HX Construction cable cost increased due to increases in copper prices
- Additional time and resources being spent on internal CERCLA (RI/FS) document development that will be recovered in completed Draft A document
- 200-ZP-1 Operable Unit (+\$3.3M)

Major contributors to the variance are as follows:

- Interim Operations reflects significant progress and cost underruns achieved to date for System Calibration
- Design of the permanent hookup of well EW-1 was lower than planned as only minor changes were needed to an existing design
- Cost for performing general operating and maintenance and minor modification activities have been lower than planned as the system has been running smoothly
- Cost for collecting depth-discrete groundwater and soil samples during the installation of new wells was less than planned
- 200W Pump-and-Treat Remedial Design/Remedial Action work plan and preliminary design activities were completed with fewer resources than planned

200 PW-1 OU (+\$0.8M)

Labor and subcontract cost for general operations and minor modifications support is less than planned. In addition, efficiencies and savings experienced with the Soil Vapor Extraction (SVE) system testing prior to March 2010 as well as the removal of two old SVE units.

Usage Based Services (-\$1.6M)

Increased cost associated with training due to the additional ARRA work in FY2010 and fleet services costs that occurred in FY2009 and FY2010. Overruns will continue to be funds-managed within the S&GRP project.

PBS RL-30 UBS, G&A, and DD (-\$2.1M)

The negative cost variance is discussed in Appendix C.

Contract Performance Report Formats are provided in Appendices A and A-1.

**Estimate at Completion (EAC)**

ARRA – The projected variance at completion is positive 3.0%.

Base – The projected variance at completion of positive 4.6% is spread among several operational areas and is not considered significant.

ARRA – The EAC change from the previous month is within reporting thresholds.

Base – The EAC change from the previous month is within reporting thresholds.

## *FUNDS vs. SPEND FORECAST* (*\$M*)

| WBS 030/ RL-0030<br>Soil and<br>Groundwater<br>Remediation | FY2011               |                      |                   |
|--|----------------------|----------------------|-------------------|
|  | Projected<br>Funding | Spending<br>Forecast | Spend<br>Variance |
| <b>ARRA</b>  | 157.6                | 157.6                | 0.0               |
| <b>Base</b>  | 174.9                | 172.1                | 2.8               |

Numbers are rounded to the nearest \$0.1M.

### **Funds/Variance Analysis**

Funding includes FY2010 carryover and FY2011 new Budget Authority.

### **Critical Path Schedule**

Critical path analysis can be provided upon request.

### **Baseline Change Requests**

AWA-030-11-015R0, Revise NTE on 200-UP-1 OU Scope Per CM 166

BCRA-PRC-11-036R0, Gen Admin & Metric Milestone Changes for June 2011

### **FY2011 Management Reserve (Funded):**

ARRA = \$0.0M

Base = \$0.0M

See management reserve table in the CHPRC Overview.

## MILESTONE STATUS

The Tri-Party Agreement (TPA) milestones represent significant events in project execution. DOE Enforceable Agreement milestones were established to provide high-level visibility to critical deliverables and specific status on the accomplishment of these key events. The PRC Baseline Revision 2 Update, implemented in September 2010, and subsequent approved BCRs define CHPRC planning with respect to TPA milestones. The following table is a one year look ahead of key milestones.

| Number        | Title   | Type | Due Date | Actual Date | Forecast Date | Status/ Comment   |
|---------------|---|------|----------|-------------|---------------|-------------------|
| M-024-62-T01  | Conclude Discussions of Well Commitments  | TPA  | 8/1/11   | 6/20/11     |               | Complete          |
| M-015-82B     | Initiate 200-BP-5 Aquifer Tests Within 6 months of TTP Approval   | TPA  | 8/1/11   |             | 8/1/11        | On Schedule       |
| M-091-40L-031 | Submit April to June 3rd Quarter FY2011 Burial Ground Sample Results.   | TPA  | 9/15/11  |             | 7/20/11       | Ahead of Schedule |
| M-015-66-T01  | Submit CERCLA RI/FS Report and PP for the 100-KR-1, 100-KR-2 and 100-KR-4 Operable Units for groundwater and soil             | TPA  | 9/21/11  |             | 9/13/11       | On Schedule       |
| M-015-70-T01  | Submit Feasibility Study Report and Proposed Plan for 100-HR-1/2/3 and 100-DR-1/2 OUs   | TPA  | 11/24/11 |             | 11/10/11      | On Schedule       |
| M-015-68-T01  | Submit CERCLA RI/FS Report and Proposed Plan for the 100-BC-1, 100-BC-2 and 100-BC-5 Operable Units for groundwater and soil. | TPA  | 11/30/11 |             | 11/30/11      | On Schedule       |
| M-091-40L-032 | PMM Submittal Jul-Sep 4th Qtr FY11 Burial Ground Sample Results   | TPA  | 12/15/11 |             | 11/30/11      | On Schedule       |
| M-015-64-T01  | Submit RI/FS Report and PP for 100-FR-1/2/3 and 100-IU-2/6  | TPA  | 12/17/11 |             | 11/29/11      | On Schedule       |
| M-015-72-T01  | Submit RI/FS Report and PP for 300-FF-2/5 OUs for GW and Soil   | TPA  | 12/31/11 |             | 12/29/11      | On Schedule       |

| Number        | Title  | Type | Due Date | Actual Date | Forecast Date | Status/ Comment |
|---------------|--|------|----------|-------------|---------------|-----------------|
| M-015-90      | Submit RCRA Facility Investigation/Corrective Measures Study (RFI/CMS) and RI/FS work plan for 200-IS-1 OU to Ecology        | TPA  | 12/31/11 |             | 12/30/11      | On Schedule     |
| M-015-91A     | Submit RI/FS Work Plan for the 200-WA-1 OU to U.S. Environmental Protection Agency (EPA)                                     | TPA  | 12/31/11 |             | 12/31/11      | On Schedule     |
| M-015-93A     | Submit Rev'd RFI/CMS & RI/FS Work Plan for SW-2 to Ecology   | TPA  | 12/31/11 |             | 12/31/11      | On Schedule     |
| M-016-111C    | Expand P&T System at 100-HR-3 OU to 800 gpm Capacity   | TPA  | 12/31/11 |             | 10/15/11      | On Schedule     |
| M-016-120     | GW Treatment System <50 gpm for Tc-99 Plume at S/SX Tank Farm  | TPA  | 12/31/11 |             | 12/31/11      | On Schedule     |
| M-016-122     | Begin Phase 1 Operation of 200W Pump-and-Treat System  | TPA  | 12/31/11 |             | 12/31/11      | On Schedule     |
| M-085-10A     | Submit RI/FS Work Plan for 200-CB-1 Operable Unit  | TPA  | 12/31/11 |             | 12/31/11      | On Schedule     |
| M-091-40L-033 | Submit Oct-Dec 1 <sup>st</sup> Quarter Burial Ground Sample Results  | TPA  | 3/15/12  |             | 2/28/12       | On Schedule     |
| M-037-03      | Submit revised closure plans to support TSD closure of two TSD Units: 216-B-3 Main Pond system and 216-S-10 Pond and Ditch   | TPA  | 4/30/12  |             | 4/30/12       | On Schedule     |
| M-015-38B     | Submit a revised Feasibility Study Report and revised Proposed Plan (s) for the 200-CW-1, 200-CW-3 and 200-OA-1 OU for Waste | TPA  | 4/30/12  |             | 4/30/12       | On Schedule     |

| Number        | Title  | Type | Due Date | Actual Date | Forecast Date | Status/ Comment |
|---------------|--|------|----------|-------------|---------------|-----------------|
|               | Sites in the Outer Area of the Central Plateau to EPA  |      |          |             |               |                 |
| M-024-58E     | Initiate Discussions of Well Commitments.  | TPA  | 6/1/12   |             | 6/1/12        | On Schedule     |
| M-091-40L-034 | Submit January to March 2nd Quarter FY-12 Burial Ground Sample Results.  | TPA  | 6/15/12  |             | 5/31/12       | On Schedule     |
| M-015-110D    | Submit Technicium-99 Pilot-scale Treatment Study Test Report as an element of the Remedial Investigation for the 200-WA-1 OU to EPA. | TPA  | 6/30/12  |             | 6/30/12       | On Schedule     |

## SELF-PERFORMED WORK

The Section H. clause entitled "Self-Performed Work" is addressed in the Overview.

## GOVERNMENT FURNISHED SERVICES AND INFORMATION (GFS/I)

None currently identified.