Department of Energy
Richland Operations Office
P.O. Box 550
Richland, Washington 99352

December 2, 2010

CERTIFIED MAIL

Mr. Sean Hackett
Gonzaga University
P.O. Box 3528
Spokane, Washington 99220-3528

Dear Mr. Hackett:

FREEDOM OF INFORMATION ACT REQUEST (FOI 2011-00105)

Your Freedom of Information Act (FOIA) request dated October 8, 2010, was received in this office on October 14, 2010. In that letter you requested the following records on behalf of Heart of America Northwest relating to the U.S. Department of Energy's (DOE) 2004 Final Hanford Solid Waste Environmental Impact Statement (EIS):

1) The adequacy of DOE's 2004 EIS including:

a. All correspondence between DOE and Battelle (the primary contractor for the Final EIS) in 2004 and 2005 relating to the adequacy of analysis, quality assurance, monitoring, and/or compliance with NEPA in preparing the final EIS.
b. All correspondence between DOE and the State of Washington between 2004 and 2005 relating to the above-referenced conclusion including any records relating to the adequacy of analysis, quality assurance, monitoring, and/or compliance with NEPA in preparing the EIS.
c. Information pertaining to DOE's July 2005 conclusion that the information in the groundwater cumulative impact analysis published in Appendix L of DOE's 2004 EIS was different than certain input parameters employed in the System Assessment Capability (SAC) computer model files that were used to prepare that analysis.

In our letter to you dated November 3, 2010, we stated that we have interpreted your request for those documents as pertaining to the 2004 and 2005 time period relating to the Final EIS and ROD and specifically to the quality assurance issue associated with PNNL's groundwater analysis, transfer of data into the EIS, and how DOE became aware of those issues. We received clarification from you on November 4, 2010, requesting that our search include any correspondence or analysis during the 2004 to August 2005 time period between Battelle/Pacific Northwest National Laboratory for information pertaining to any inadequacies of the final EIS (not just on groundwater analysis i.e. quality assurance issues including but not limited to groundwater analysis). Therefore, this portion of your request will be numbered 1d.

This is a partial response and enclosed are documents responsive to item 1c of your request.

In our letter dated November 3, 2010, this office notified you that an extension of five weeks would be needed as we would be unable to complete your request within twenty working days or within the routine ten day extension. We continue to search and review documents responsive to your request. Since your request has resulted in a search and review of conceivably thousands of documents, and requires DOE to retrieve records that are remotely stored at an offsite location, we will require another extension as it is unlikely we will be able to complete your request by December 8, 2010. At this time we estimate your response being complete within four to five weeks. If this will not be adequate please advise me before you seek other alternatives. We will work with you to provide frequent communication (either by letter or e-mail) regarding the status of your request and will provide interim responses to you as documents become available.

If you have any questions regarding your request, please contact me at our address or on (509) 376-6288.

Sincerely,

Dorothy Riehle
Freedom of Information Act Officer
Office of Communications
and External Affairs

OCE:DCR

Enclosures

Battelle HSW-EIS Groundwater Analysis Issue Fact Sheet

ISSUE: This fact sheet provides information regarding differences identified last week by Battelle between the groundwater cumulative impact analysis published in the Hanford Site Solid Waste Environmental Impact Statement (HSW-EIS) and certain input parameters used in the Battelle computer modeling to prepare the analysis. The HSW-EIS is the subject of litigation, and Battelle was compiling information to respond to interrogatories when it discovered three inconsistencies within the data sets used for the groundwater cumulative impact analysis. They are:

1. **Inventory Discrepancies:** The waste inventory for a portion of solid waste sources published in a table in the HSW-EIS were found to be different from those used in the release model files in the System Assessment Capability (SAC).
2. **Release of Iodine-129:** Within the HSW-EIS, the groundwater Cumulative Analysis and all of its results are discussed and portrayed as 10,000 year analyses. However it was discovered that the iodine-129 release models for both "soil debris" and "cement" were executed for only 1000 years. This error did not affect the analysis of the other analytes, other waste forms, or the remainder of the simulation.
3. **Inconsistent Cement Release Model Parameters:** Some release model parameters (diffusion coefficient and the area-to-volume ratio) for the diffusion of waste through a cement waste used in the models were found to vary from those reported in a table in the HSW-EIS.

RESPONSES: Upon discovery of the discrepancies, Battelle promptly notified the Department. When DOE first learned of the discrepancies, it promptly notified the Department of Justice, the State of Washington, and the Court. Battelle also immediately instituted a review process to determine if there may be other inconsistencies. It is not yet known what impact the discrepancies will have on the final analysis. Battelle is, of course, poised to assist the Department of Energy with whatever follow-on action is required.

BACKGROUND: Battelle began supporting DOE-RL in the preparation of the HSW-EIS in December 1996. Specifically, the HSW-EIS evaluated:

- the storage, treatment, and/or disposal of existing and anticipated quantities of solid low-level waste and mixed low-level waste;
- storage, processing, certification, and shipment of transuranic waste; and
- disposal of immobilized low-activity waste produced during the treatment of tank waste, as well as the glass melters used to vitrify the wastes.

Battelle provided the impact calculations for this 3760 page HSW-EIS, including a groundwater cumulative impact calculation. The groundwater cumulative impacts are only one part of dozens of impact calculations included in the HSW-EIS and are intended to put the proposed actions in context with other activities occurring on the site. The SAC tool, used for groundwater cumulative impact analysis, is a collection of models representing waste site inventories, contaminant release and environmental transport of the contaminants, and impacts of the contaminants on receptors. It is complemented with a set of data representing disposals and discharges at Hanford, the Hanford Site environment, and human health and ecological impact model parameters. In the HSW-EIS groundwater cumulative impact analysis, this tool simulated the release of contamination from over 500 waste site locations extending over the entire Hanford Site. In the SAC, a three-dimensional site-wide groundwater model is used to simulate contaminant migration to the Columbia River, and a two-dimensional model of the river simulates contaminant migration downstream. The analysis predicts fate and transport of contaminants from all Hanford disposals (completed and planned) using both a deterministic and a limited stochastic analysis to explore the range or bracket the uncertainty. These simulations are completed over a 10,000-year period of analysis. Because of the complexity of the code and the cumulative problem being addressed, the HSW-EIS analysis required a computer cluster that included 128 processors and over a terabyte of memory. The inputs and outputs from the analysis form a 360 Gigabyte data set.

Hanford Site Solid Waste Environmental Impact Statement
Monthly Status Report
Draft – August 2005 Month-End

Accomplishments for the Past Month:

- During the past month PNNL continued to provide direct support to RL in developing responses to the interrogatories and preparing all the documentation in the discovery request for production. This effort was curtailed on August 19, 2005 after a second stipulated agreement was submitted to the court extending the discovery process to October 7, 2005.
- On July 28, 2005 RL requested PNNL to begin preparing a comparative table of inventories and parameters that would be used as a basis for preparing a Technical Guidance Document (TGD) for performing HSW-EIS cumulative impacts and groundwater alternatives reanalysis. Preparation of this table is ongoing and is being reviewed by the Hanford Site's Configuration Management Group (CMG), in conjunction with similar input for other related efforts.
- An updated Project Management Plan (PMP) has been drafted and is in the review and approval cycle. The project records (RIDS) have also been updated.
- A PAAA NTS report was prepared and submitted on August 25, 2005. Completion of causal analysis and corrective actions are pending DOE comments and direction on the previously submitted corrective action plan.
- Groundwater modeling personnel are updating their Quality Assurance protocols and procedures under a related project to ensure the integrity and accuracy of future modeling efforts.

Schedule Status: Support in responding to the interrogatories and assembling the discovery documentation has been stopped. Work on the corrective action plan is currently limited to the assembly of the inventory and parameters comparison table and the preparation of documents and records for the upcoming DOE project review. Once comments are received and resolved on the Corrective Action Plan a detailed resource loaded schedule will be prepared, along with a critical milestone table, to allow ongoing and future actions to be more closely tracked.

Issues:

- Corrective Action Plan cannot be finalized and implemented until comments are received from RL/HQ.
- Development of a draft Technical Guidance Document, beyond the preparation of the comparison table, cannot proceed until a number of scope related questions are discussed and decisions are reached.
- Funding for the evolving project scope cannot be accurately estimated until scope issues discussed above are resolved.

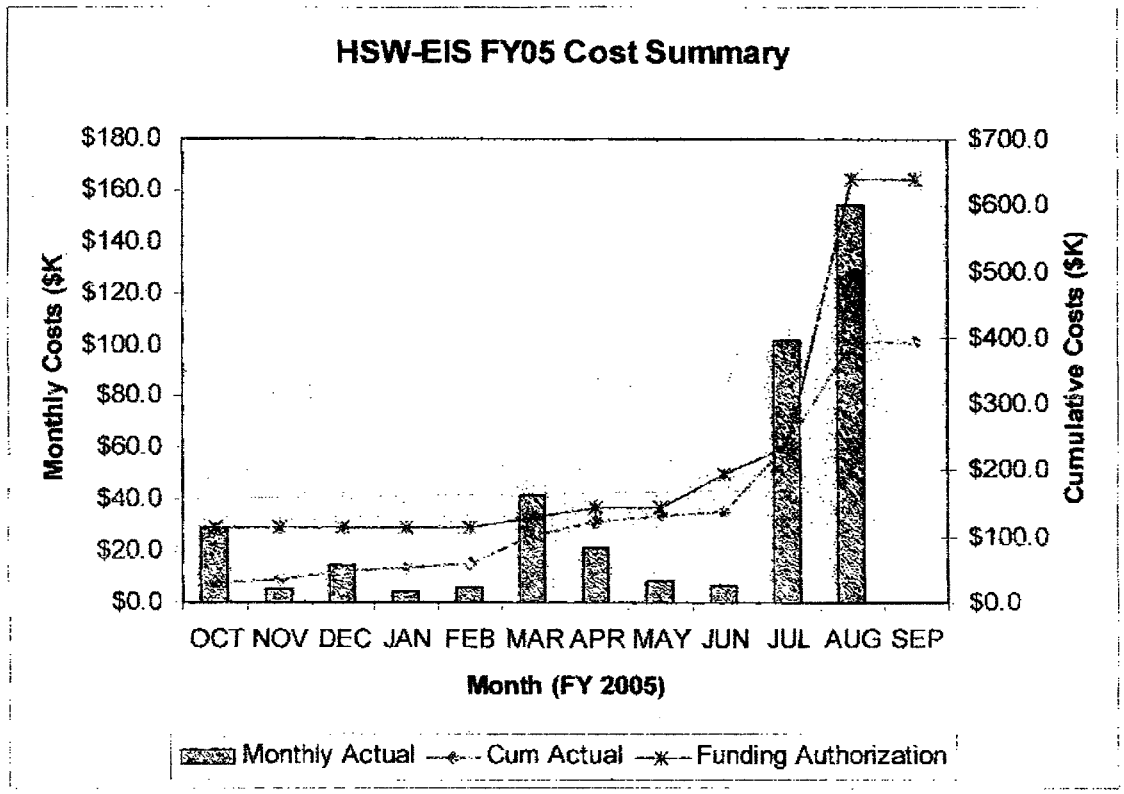
All items listed as issues will be tracked through resolution on the critical action list.

Critical Action List Status:

- See attached critical action table for status of items.

Financial Status: For the fiscal year (FY05) a starting budget of $13.8K of carryover funding was available for follow-on support. An additional, $100K of supplemental funding was provided in early October, 2005. On both March 10, 2005 and on March 31, 2005 supplemental funding of $15K was provided. On May 21, 2005 PNNL prepared and submitted an updated cost estimate for PNNL support during the discovery phase of the litigation. On May 26, 2005 RL informed PNNL that funding had been identified and would be provided to PNNL in a few increments, with the initial $50K

to be provided on June 16, 2005. On July 25, 2005 the second increment of $45K was provided. On July 26, 2005 a preliminary cost estimate was provided to RL (attached) based on the draft corrective action plan and the ongoing discovery process. Until scope is more clearly defined, the estimate should be considered highly uncertain. On July 29, 2005 DOE provided an additional funding increment of $150K and on August 16, 2005 $250K. A total of $625K in additional funding has been provided this FY. The resulting FY budget for the year is an authorized amount of $638.8K. Through the fiscal month of July (ending on July 22, 2005) a total of $395.0K has been expended ($154.3K for the month), leaving $243.8K available for ongoing and future activities.



Planned/Upcoming Actions:

- Provide support to RL/HQ and DOJ in support of the litigation (interrogatories and discovery processes) if requested.
- Work with the CMG to define the inventory and parameter comparison table, along with the definition of the specific alternatives/cases to be simulated, so that a comprehensive TGD could be developed for any supplemental HSW-EIS analyses.
- Revised/update the Corrective Action Plan to incorporate comments and guidance provided by RL/HQ.
- Support project reviews as required.

Hanford Site Solid Waste Environmental Impact Statement
Monthly Status Report

ATTACHMENTS

Critical Items List

Critical Items List
8-01-05.doc

Hanford Site Solid Waste Environmental Impact Statement
Monthly Status Report
Draft – July 2005 Month-End

Accomplishments for the Past Month:

- During the past month PNNL continued to provide direct support to RL in defense of the litigation by the State of Washington. DOE-HQ received the State of Washington's interrogatories (questions) and request for production of documents related to the remaining open issues on June 28, 2005. The questions in the interrogatories were related to the groundwater modeling and cumulative impacts analysis areas, and specifically the I-129 and Tc-99 source inventories analyzed and the release, vadose zone and groundwater modeling associated with the analysis of the various alternatives and the cumulative impact analysis.
- In responding to the interrogatories, PNNL technical staff associated with the cumulative impacts analysis were required to access archived computer files (SAC files under the directory HSW-EIS3_median) from the reported HSW-EIS simulation of the median (deterministic) cumulative analysis. These files were evaluated to understand specific concrete waste form releases from solid waste burial grounds of I-129 and Tc-99 to the vadose zone. Based on these evaluations three errors/inconsistencies were identified within the data sets used for the cumulative analysis. These were discovered late on Friday July 15, 2005, were confirmed on Monday July 18, 2005 and disclosed to DOE-RL that day. Department of Justice (DOJ) was notified the following day. The issues discovered are:
    - **Inventory Discrepancies:** The waste inventory for a portion of solid waste sources published in a table in the HSW-EIS were found to be different from those used in the release model files in the System Assessment Capability (SAC).
    - **Release of Iodine-129:** Within the HSW-EIS, the groundwater Cumulative Analysis and all of its results are discussed and portrayed as 10,000 year analyses. However it was discovered that the iodine-129 release models for both "soil debris" and "cement" were executed for only 1000 years. This error did not affect the analysis of the other analytes, or the remainder of the simulation.
    - **Inconsistent Cement Release Model Parameters:** Some release model parameters (diffusion coefficient and the area-to-volume ratio) for the diffusion of waste through a cement waste used in the models were found to vary from those reported in a table in the HSW-EIS.
- A one page white paper on this discovery was prepared and submitted to RL/HQ on July 20, 2005.
- A draft Corrective Action Plan (CAP) was also prepared by PNNL and submitted to RL/HQ on Thursday July 21, 2005. The draft CAP (attached) provides a proposed plan of action to correct the SAC modeling runs, prepare errata pages to the HSW-EIS and to perform a broader, independent review of other groundwater modeling results within the HSW-EIS. The CAP also identifies that a root-cause analysis will be performed.
- A press release was issued by DOE-HQ on July 22, 2005. Prior to the press release DOE-HQ notified the State of Washington and the Court. The discovery process has been extended.
- Battelle Washington staff was contacted directly by congressional staffers asking for information on this issue. A one page fact sheet for briefing congressional staffers (attached) describing the discovery was prepared by Battelle and reviewed by RL/HQ on July 26, 2005,
- RL provided limited verbal direction on July 25, 2005 to continue to support the discovery process and to limit any corrective actions to the assessment of the errors/inconsistencies uncovered in the modeled data, particularly as it relates to the answers to the interrogatories, until more formal guidance is provided by RL/HQ on the CAP. On July 28, 2005 RL requested PNNL to begin preparing a comparative table of inventories and parameters that would be used as a basis for preparing a Technical Guidance Document (TGD) for

performing HSW-EIS cumulative impacts and groundwater alternatives reanalysis. This table would relate the values used in the Tank Closure-EIS, with those originally used in the HSW-EIS, to those recommended for the HSW-EIS supplemental analysis, along with the rationale for the proposed changes. The TGD would be approved by the Hanford Site's Configuration Management Group (CMG), to ensure consistency in analysis with the other ongoing or planned assessments. The CMG, and their use of a TGD to approve modeling parameters, did not exist at the time the HSW-EIS analysis was originally performed.

Schedule Status: Support continues in responding to the interrogatories and assembling the discovery documentation requested. Work on the corrective action plan is currently limited to the assessment of the issues identified (in support of the interrogatories) and the drafting of the TGD and the associated comparison table. Once comments are received and resolved on the corrective action plan a detailed resource loaded schedule will be prepared, along with a critical milestone table, to allow ongoing actions to be more closely tracked.

Issues:

- Corrective Action Plan cannot be finalized until comments are received from RL/HQ. Guidance is needed concerning specific project scope, endpoints and deliverables (e.g. what additional analysis should be conducted, how the analysis should be framed, process for establishing independent QC checking and oversight of the analysis, approach for documentation and external reviews, etc.).
- Development of a draft Technical Guidance Document, beyond the preparation of the comparison table, cannot proceed until a number of scope related questions are discussed and decisions are reached. These include;
    - should the groundwater analysis be for all the alternative and inventory combinations identified in the Final HSW EIS, or can these be narrowed down for the supplemental analysis;
    - should sensitivity cases be embedded in alternatives (i.e. original EIS looked at both northward groundwater flow and eastward groundwater flow from Central Plateau);
    - does the cumulative analysis need to be run for all alternatives – or some subset;
    - based on the evolution of inventories, model parameters, and model elements of the cumulative assessment, what inventories, model parameters, and SAC version should be set up and run; and
    - what level of detail is needed in TGD; what level of inventory and model parameter detail should be provided in the text or appendices?
- Funding for the evolving project scope cannot be accurately estimated until scope issues discussed above are resolved. A resource loaded schedule will be prepared upon resolution of these issues allowing costs and commitments to be accurately estimated and tracked.

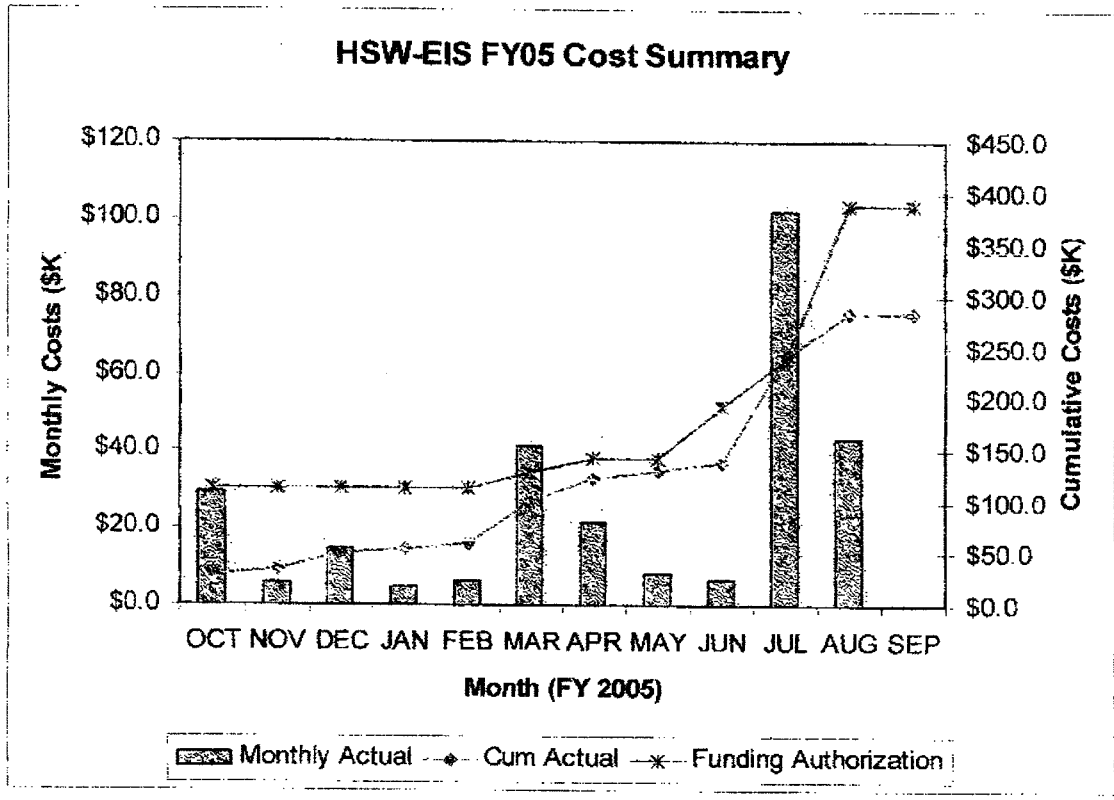
All items listed as issues will be tracked through resolution on the critical action list.

Critical Action List Status:

- See attached critical action table for status of items.

Financial Status: For the fiscal year (FY05) a starting budget of $13.8K of carryover funding was available for follow-on support. An additional, $100K of supplemental funding was provided in early October, 2005. On both March 10, 2005 and on March 31, 2005 supplemental funding of $15K was provided. On May 21, 2005 PNNL prepared and submitted an updated cost estimate for PNNL support during the discovery phase of the litigation. On May 26, 2005 RL informed PNNL that

funding had been identified and would be provided to PNNL in a few increments, with the initial $50K to be provided on June 16, 2005. On July 25, 2005 the second increment of $45K was provided. On July 26, 2005 a preliminary cost estimate was provided to RL (attached) based on the draft corrective action plan and the ongoing discovery process. Until scope is more clearly defined, the estimate should be considered highly uncertain. On July 29, 2005 DOE provided an additional funding increment of $150K. A total of $375K in additional funding has been provided this FY. The resulting FY budget for the year is an authorized amount of $388.8K. Through the fiscal month of July (ending on July 22, 2005) a total of $240.7K has been expended ($101.9K for the month). For the first fiscal week of August an additional $43.1K was expending, leaving $105K available for ongoing and future activities.



Planned/Upcoming Actions:

- Continue to provide support to RL/HQ and DOJ in support of the litigation (interrogatories and discovery processes).
- Work with the CMG to define the inventory and parameter comparison table, along with the definition of the specific alternatives/cases to be simulated, so that a comprehensive TGD could be developed for any supplemental HSW-EIS analyses.
- Revised/update the Corrective Action Plan to incorporate comments and guidance provided by RL/HQ.
- Work with RL technical and legal staff to identify appropriate points of contact for technical questions and issues. Consider reestablishing weekly interface meetings and reporting activities.

ATTACHMENTS

Draft Corrective Action Plan

corrective action
plan rev1.pdf

Fact Sheet

HSWEIS-Fact-Sheet-
Final.pdf

Cost Estimate

FW Numbers.msg

Corrective Items List

Critical Items List
8-01-05.doc

Draft – Draft – Draft
Attorney-Client Privileged

The U.S. Department of Energy (DOE) has initiated a review to assess the accuracy of the data used and reported in the 2004 Hanford Site Solid Waste Environmental Impact Statement (HSW EIS), primarily related to the modeling of groundwater cumulative impacts.

DOE has been advised by its support contractor on the (HSW EIS), that technical staff has identified some differences between data inputs to the groundwater cumulative impact modeling and information reported in the HSW EIS.

DOE's Pacific Northwest National Laboratory (PNNL), operated by the Battelle Memorial Institute, developed the model used in the groundwater analysis in the HSW EIS and supported DOE in the preparation of the document.

The HSW EIS is the subject of litigation between the State of Washington and DOE. Today, DOE notified both the Federal Court and the State of the differences reported by Battelle. DOE has filed a request with the Court for an extension of ongoing aspects of the litigation in order to evaluate this matter further.

In the HSW EIS, a cumulative impacts modeling tool was used to predict the future groundwater impact of waste disposals at Hanford. The model includes inputs for contaminant inventory, contaminant release, and transport of contaminants through the vadose zone (below the surface but above the groundwater) for waste sources across the Hanford Site. That information was fed into a single site-wide groundwater model, which estimated the potential release of contaminants to the Columbia River.

In compiling information for submission to the Court, PNNL staff identified errors affecting three data sets used for the groundwater cumulative impacts analysis -- the inventory of contaminants within the solid waste deposits that could be released to the vadose zone, the length of time releases were modeled for one contaminant, and the model parameters affecting release rates.

Under Secretary Garman has directed the Science and the Environmental Management Programs to:

- determine the full extent of the problem;
- provide a corrective action plan to be approved by the Under Secretary to address the problem
- perform all actions in a transparent manner with involvement from the State and the public; and
- conduct a thorough review under the National Environmental Policy Act (NEPA) with public participation, and take any appropriate action.

DRAFT

ATTORNEY CLIENT AND ATTORNEY WORK PRODUCT PRIVILEGED

Communication on Actions related to the Hanford Site Solid Waste EIS

Background:

Following the July 2005 discovery of data discrepancies in the Hanford Site Solid Waste EIS, DOE arranged for a review of the document and related issues. In October 2005 a team led by a representative from the DOE Idaho Operations Office completed the review report, entitled "Solid Waste Environment Impact Statement (EIS) Data Quality, Control and Management Issues."

As a result of that review, and of the need to resolve concerns about the HSW EIS, it is anticipated that DOE will ultimately take actions to resolve the issue.

This plan describes the notifications to be made following those decisions. It will be updated with specific information at the appropriate time. In order to maintain consistency, this plan contains the contacts that were initially made in July 2005 following the discovery of the data discrepancies.

It is anticipated the order of notifications will be: Washington State and the Environmental Protection Agency (Hanford regulators), followed by the state congressional delegation. It is assumed at this time that HQ PA will send out a press statement to its standard distribution list. Follow-up press calls would be handled by Mike Waldron, HQ-PA, with assistance as needed from Colleen French, RL PA.

[*Due to continuing work to finalize the Review Report, it is expected that the Report will not be completed and available until November 4 or later.*]

1. Notification to the State of Washington and EPA

Jay Manning, Director Department of Ecology	360-407-7001	HQ CI
Tom Fitzsimmons, Chief of Staff to Governor Gregoire	360-902-4111	HQ CI
Environmental Protection Agency	Nick Ceto, Hanford Program Manager 509-376-9529	RL Manager

2. Notification to the Congressional delegation

Congressman Doc Hastings	Todd Young, Chief of Staff 202-225-0504	HQ CI
Senator Patty Murray	Lesley Turner, LD 202-224-2621	HQ CI
Senator Maria Cantwell	Clark Mather, LA 202-224-3441	HQ CI

3. Other External Notifications

State of Oregon Department of Energy	Ken Niles, Associate Administrator 503-918-7488 pager	RL Deputy Manager
Hanford Advisory Board	Todd Martin, Chair 250-362-5629	RL Deputy Manager

Attorney Work Product Attorney Client Privileged

Communication Plan on the HSW EIS Issue

This plan describes the actions to be taken Friday, July 22, 2005 following the identification of differences between data inputs to the groundwater cumulative impact modeling and information describing that modeling in the 2004 Final Hanford Site Solid Waste Program Environmental Impact Statement.

Points of contact at the Richland Operations Office are:

Betty Hollowell, Chief Counsel, (509-376-7311)
Colleen French, External Affairs, (509-373-5985)

Roll out will consist of a three-step process. Filing of court document/s will occur first, at approximately 4:00 p.m. EDT. Filing will be followed by notification to attorneys for the State of Washington by DOJ and calls to the Congressional delegation by HQ-CI. Following notification, HQ PA will send out a press statement and copy of the court filing to its standard distribution list. Follow-up press calls will be handled by Mike Waldron, HQ-PA, with assistance as needed from Colleen French, RL PA.

1. Legal actions

DOE HQ, RL,ORP,PSO, DOJ	List of e-mail addressees	Charlie Shockey DOJ 916 930 2203	Coordinate Draft Notice to Court and State and Finalize for filing
U.S. Eastern District Court	Clerk of Court	Charlie Shockey, DOJ	File Notice of NEPA Analysis and Request for Extension of Discovery with court clerk and Washington AG's office. Notice will identify differences in HSW EIS and modeling data and request delay in discovery and extension of injunction on LLW/MLLW.
Washington Attorney General	Joseph Shorin & Andrew Fitz	Charlie Shockey, DOJ	Call AG's office immediately thereafter to convey information that the notice has been filed.

2. Notification to the Congressional delegation

Congressman Doc Hastings	Todd Young, Chief of Staff 202-225-0504	HQ CI
Senator Patty Murray	Lesley Turner, LD 202-224-2621	HQ CI
Senator Maria Cantwell	Clark Mather, LA 202-224-3441	HQ CI

3. Notification to the State of Washington

Jay Manning, Director Department of Ecology	360-407-7001	RL Deputy Manager
Mike Wilson, Nuclear Waste Program Manager	360-407-7150	RL Deputy Manager
Tom Fitzsimmons, Chief of Staff to Governor Gregoire	360-902-4111	HQ CI
Keith Phillips, Policy Advisor to Governor Gregoire	360-902-0630	HQ CI

4. Other External Notifications

Environmental Protection Agency	Nick Ceto, Hanford Program Manager 509-376-9529	RL Deputy Manager
State of Oregon Department of Energy	Ken Niles, Associate Administrator 503-918-7488 pager	RL Deputy Manager
Hanford Advisory Board	Todd Martin, Chair 250-362-5629	RL Deputy Manager

DRAFT

HSW-EIS Groundwater Analysis Corrective Action Plan

Revision 1, 7/21/05

Wayne Johnson, Project Manager

BACKGROUND

PNNL began supporting DOE-RL in the preparation of the Hanford Site Solid Waste Environmental Impact Statement (HSW-EIS) in December 1996. The HSW-EIS was a Hanford site specific EIS that was required as a follow-on from the Records of Decision (RODs) issued on DOE's Programmatic Waste Management EIS. Specifically, the HSW-EIS evaluated:

- the storage, treatment, and/or disposal of existing and anticipated quantities of solid low-level waste and mixed low-level waste;
- storage, processing, certification, and shipment of transuranic waste; and
- disposal of immobilized low-activity waste produced during the treatment of tank waste.

The HSW-EIS RODs will provide a decision basis for future solid waste activities at the Hanford site. EIS calculations are conceptual by their nature as the engineering and approaches for the various alternatives are often quite speculative. Follow-on modeling would be needed to permit and license new activities and CERCLA RODs and RCRA closure plans would be required to support the closure of the various disposal sites.

Scoping activities occurred in 1997/1998. Initial analysis on the EIS was conducted in 1999 leading to a number of working drafts and reviews. In April 2002, RL approved the first draft HSW-EIS for public review. In responding to public comments in August 2002 RL committed to preparing a revised draft HSW-EIS. In April 2003, the revised draft EIS was issued for a second public comment period. In January 2004, DOE issued the Final HSW-EIS and in June of 2004 DOE issued the RODs. Each version of the HSW-EIS was built on and updated the analyses in the previous versions. Each version underwent extensive internal and external reviews prior to public release (including detailed technical reviews by a DOE NEPA panel composed of technical, programmatic, and legal experts from both RL and DOE-HQ).

As part of the revised draft HSW-EIS a decision was made in August/September 2002, to use the System Assessment Capability (SAC) modeling tool as a means to perform the cumulative groundwater impacts analysis portion of the HSW-EIS. The cumulative impacts calculations are only one part of dozens of impact calculations included in an EIS. The SAC tool had been in development for a number of years and the prototype run (called an initial assessment) was completed in 2002. A document describing the approach, results and lessons learned in this initial assessment was published in September 2002. The prototype tool was brought to bear on the HSW-EIS project with little time allowed to revise the models or modify the inventory data and model parameters. The initial assessment model runs were 1000 year simulations. The HSW-EIS simulations needed to be 10,000 years in duration. Modifications to the code needed to generate the more lengthy simulations were made as quickly as possible.

The SAC tool is a collection of data sets and models representing waste site inventories, contaminant release and environmental transport of the contaminants, and impacts of the contaminants on receptors. It includes contaminant inventory, contaminant release models, and vadose zone transport models for each waste source. These models estimate the release of contaminants into a single site-wide groundwater fate and transport model which ultimately estimates the release of contaminants to the Columbia River. Additional components of the model then use the environmental concentrations estimated to calculate impacts to various receptors. The capability encompasses more than 500 unique source terms, including tanks, cribs, ponds, ditches, burial grounds, and facilities and uses historic source information to

recreate the existing groundwater plumes, beginning with the initial Hanford Site operations. It is arguably the most complex and comprehensive model set of its type. It addresses a wide variety of complex waste forms and disposal geometries, extending over the entire Hanford Site and the Columbia River to McNary Dam, and predicting fate and transport using both deterministic and stochastic approaches over 1000's of years.

While the HSW EIS was under preparation the State of Washington had filed suit against the DOE requesting that shipment of transuranic wastes from off-site locations not be allowed until the HSW-EIS and it's associated RODs were issued. This lawsuit was later amended to include low-level and mixed waste. After the EIS was issued an additional lawsuit was filed claiming the EIS was inadequate. In the Spring of 2005, the judge heard initial arguments from the State and the Depart of Justice (DOJ) and DOE (following submittal of affidavits and declarations by the parties) and issued a decision that the only areas where issues remained for discovery were with respect to the vadose zone and groundwater modeling, and the potential releases of Tc-99 and I-129. DOJ/DOE received the State of Washington's interrogatories (questions) and request for production of documents related to these remaining issues on June 28, 2005. The questions in the interrogatories surround the inventories analyzed; the release, vadose zone and groundwater modeling associated with the analysis of the various alternatives; the release, vadose zone and groundwater analysis performed as part of the cumulative impact analysis; and an unrelated groundwater modeling study undertaken with respect to the integrated disposal facility. Two of PNNL's technical staff have had the lead in preparing technical responses to the interrogatories related to this portion of the HSW-EIS.

ISSUE

In responding to the interrogatories, PNNL technical staff associated with the cumulative impacts analysis were required to access archived computer files (SAC files under the directory HSW-EIS3_median) from the reported HSW-EIS simulation of the median (deterministic) cumulative analysis. These files were evaluated to understand specific concrete waste form releases from solid waste burial grounds of I-129 and Tc-99 to the vadose zone. Based on these evaluations three errors/inconsistencies were identified within the data sets used for the cumulative analysis. These were discovered late on Friday July 15, 2005, were confirmed on Monday July 18, 2005 and were disclosed to DOE on Tuesday July 19, 2005.

These include:

1. INVENTORY

The HSW EIS published in Table L.1 of Appendix L the inventory analyzed in the Cumulative Groundwater Analysis. Among the inventory values included in this table for solid waste burials are "soil debris" waste and "cement" waste.

Data found in archived release model files show for each release model (1) the inventory remaining in the solid waste site and (2) the inventory that has released into the vadose zone. At a moment in time, e.g., the year 2050 AD, if these two quantities are summed, they reflect the total inventory in the waste site for the waste form, e.g., cement. These inventories – published in Table L.1 and found in archived release files – do not agree.

Pending further review, it is believed the inventories shown in the archived release files for Tc-99 and I-129 are correct.

	EIS Table L.1 Inventory			Archived Release Model File		
	Tc-99	I-129	U	Tc-99	I-129	U
200 East Area						
"soil"	25.3	0.39	0.12	24.5	0.40	0.12
"cement"	0.08	0	0	0	0	0
200 West Area						
"soil"	343	0.41	209	295	0.43	2046
"cement"	1291	64.2	1837	1011	64.2	0.69

Note: Table L.1 values are decayed to 2050 AD, and archived release model results are decayed to 12050 AD.

2. YEARS OF RELEASE FOR IODINE-129

Within the HSW EIS, the groundwater Cumulative Analysis and all of its results are discussed and portrayed as 10,000 year analyses.

Data in archived release model files reflect that the iodine-129 release models for both "soil debris" and "cement" executed only until 3050 AD; 1000 years.

During the 1000 year period simulated by the release model, the "cement" model released 0.27 Ci of iodine-129. If all parameters are held constant and the analysis continued for 10,000 years, the additional release quantity would be approximately 2.4 Ci. This amount is a relatively small fraction of the EIS- assumed 64.2 Ci of iodine-129 in cement waste disposal in 200 West Area. Review of the technetium-99 and uranium files shows these models released for the full 10,000 years. Simulation of the vadose zone, which delivers contamination to the underlying aquifer, continued for the full 10,000 years. In summary, the iodine-129 release simulations are described in the HSW EIS as 10,000 year events; however, the release files indicate they were executed for 1000 years.

	HSW EIS text	Archived Release Model File
Time Period of Release	10,000 years	1000 years

3. CEMENT RELEASE MODEL PARAMETERS

The release model parameters are published in Table L.2 of Appendix L in the HSW EIS for the Cumulative Groundwater Analysis. Release model parameters for the cement model are the diffusion coefficient and the area-to-volume ratio. Diffusion coefficients for technetium-99, iodine-129 and uranium are shown in Table L.2, and shown below. A single area-to-volume ratio is reported in the table.

Archived release model files show the parameters employed in the cement release model for each analyte. These values appear below on the right. The files for both the deterministic median-value simulation and the stochastic simulation were reviewed.

The primary issue in the cement model parameter discrepancy is the area-to-volume ratio; a single value should appear in Table L.2 and be used in both models.

	EIS Table L.2 – Release Parameters	Archived Release Model File
Area / Volume Ratio (cm^{-1})	0.00378	0.021 (deterministic run – median value) 0.00192 (stochastic run, fixed parameter)
Diffusion Coef – Tc-99 (cm^2/yr)	Min 1.58×10^{-4} Median 1.02×10^{-3} Max 1.89×10^{-3}	1.58×10^{-4} (this min value should be the median value)
Diffusion Coef – I-129 (cm^2/yr)	3.5×10^{-5} (this is a typo; should be 3.15×10^{-5})	3.15×10^{-5}
Diffusion Coef – U (cm^2/yr)	3.15×10^{-5}	3.15×10^{-5}

No similar issues were identified with the alternative analysis groundwater modeling, which were performed using a simpler independent model. PNNL technical staff continue to support the interrogatories and request for production.

CORRECTIVE ACTIONS

Corrective actions have been broken down into three separate sets of activities.

- ◊ The first set of activities is specifically related to SAC modeling issues and their resolution (e.g. known discrepancies between the SAC runs and the published EIS).

- ◊ The second set of activities is the independent verification and review of the modeling results that are being evaluated within the context of the ongoing litigation (e.g. groundwater analysis of the alternatives).

- ◊ The third set of activities is related to the systematic review and verification of other modeling results relied on within the HSW-EIS.

The following sections describe the technical and management approach in completing these activities. Following the description of the activities is a time-phased schedule and cost estimate for each task.

This corrective action plan covers issues directly related to amending the HSW EIS. Any additional corrective actions taken by PNNL management to address root causes will be covered under a separate corrective action plan.

Resolution of SAC Modeling Issues (errors/inconsistencies):

1. **Verification of SAC errors** - Continue to research the inconsistencies identified in item numbers 1 and 3 above (dealing with source inventories and release model parameters) and determine the extent of the errors, their impact, and corrections needed to the modeling runs or data tables.

2. **Acquire Historic Software Version** – Acquire the Fall 2002/Spring 2003 software versions from the CVS system used to archive the software and all changes.

3. **Compile and Test on New Operating System** – Compile the historic version and test to verify that it is capable of running on the new operating system.

4. **Acquire, QC, and Correct Input Files** - Acquire the input streams and correct them as necessary. Use the embedded templates as a means to systematically verify parameters and input values for all sources.

5. **Validation & Testing** – Using historic input values perform at least 3 independent testing runs to confirm results are repeatable and a true representation of the original results.

6. **Run Deterministic Case** – Using the historic code and the corrected input files rerun the I-129, Tc-99, and Uranium 10,000 year SAC deterministic cumulative impacts analysis. During the course of these runs we will review and verify data at interfaces between the various modeled elements, including the interface between release and vadose zone.

7. **Analyze the Results and Prepare Errata Pages** – Analyze the results from the deterministic runs and assess the impact of this reanalysis on the results and conclusions within the HSW-EIS. Prepare data tables, figures, and narrative needed in support of errata pages for the HSW-EIS. It is assumed that errata pages will be needed in Appendix L, Section 5.4, and the summary.

8. **PNNL QC and Management Review of Deterministic Case** – An internal PNNL review of the errata pages will be conducted to assure completeness and to verify accuracy.

9. **Errata Page Revision** – Based on the internal review, revise and update the errata pages.

10. **Run Stochastic Cases** – This corrective action plan includes the option to perform the more extensive rerun of the 25 stochastic realization cases, again using the historic code and the corrected input files for I-129, Tc-99, and Uranium. During the course of these runs we will review and verify data at interfaces between the various modeled elements, including the interface between release and vadose zone.

11. **Analyze the Results and Prepare Errata Pages** – Analyze the results from the stochastic runs and assess the impact of this reanalysis on the results and conclusions within the HSW-EIS. Prepare data tables, figures, and narrative needed in support of errata pages for the HSW-EIS. It is assumed that errata pages will be needed in Appendix L, Section 5.4, and the summary.

12. **PNNL QC and Management Review of Stochastic Cases** – An internal PNNL review of the errata pages will be conducted to assure completeness and to verify accuracy.

13. **Errata Page Revision** – Based on the internal review, revise and update the errata pages.

The remaining activities are unrelated to the three errors identified, but are necessary to ensure data quality and reliability for other modeling activities conducted in support of the HSW-EIS impacts analyses.

Independent Verification of Litigation Related Modeling Results:

14. **Identification of Critical Analytical Elements** – Identify the models and calculations within the HSW-EIS that are related to the current interrogatories, other than the SAC modeling described above (e.g. groundwater modeling of the alternatives).

15. **Obtain the Historic Modeling Runs** – Obtain the modeling run files associated with these impact calculations.

16. **Review Input and Output Files** – Systematically review the input and output files from each model, compare to published tables within the HSW-EIS, and review internal data files as needed to assure data integrity.

17. **Assessments/Conclusions** – Document the result of the review in a short data report describing the work completed, any errors or inconsistencies identified, an assessment of impacts, and recommendations, including preparation of limited errata pages.

18. **PNNL QC and Management Review** – An internal PNNL review of the results will be conducted to assure completeness and to verify accuracy.

19. **Report Revision** – Based on the internal review, revise and update the report along with any errata pages.

Additional Independent Verification of Other Modeling Results not specified in the Lawsuit:

20. **Identification of Critical Analytical Elements** – Identify the models and calculations within the HSW-EIS (beyond those described above) which are critical elements to the conclusions reached and the decisions made.

21. **Obtain the Historic Modeling Runs** – Obtain the modeling run files associated with these impact calculations.

22. **Review Input and Output Files** – Systematically review the input and output files from each model, compare to published tables within the HSW-EIS, and review internal data files as needed to assure data integrity.

23. **Assessments/Conclusions** – Document the result of the review in a short data report describing the work completed, any errors or inconsistencies identified, an assessment of impacts, and recommendations, including preparation of limited errata pages, if necessary.

24. **PNNL QC and Management Review** – An internal PNNL review of the results will be conducted to assure completeness and to verify accuracy.

25. **Report Revision** – Based on the internal review, revise and update the report along with any errata pages.

In addition to the specific actions identified above, a root cause analysis will also be performed and findings will be presented to the PAAA working group.

General Cost and Schedule Estimate Assumptions:

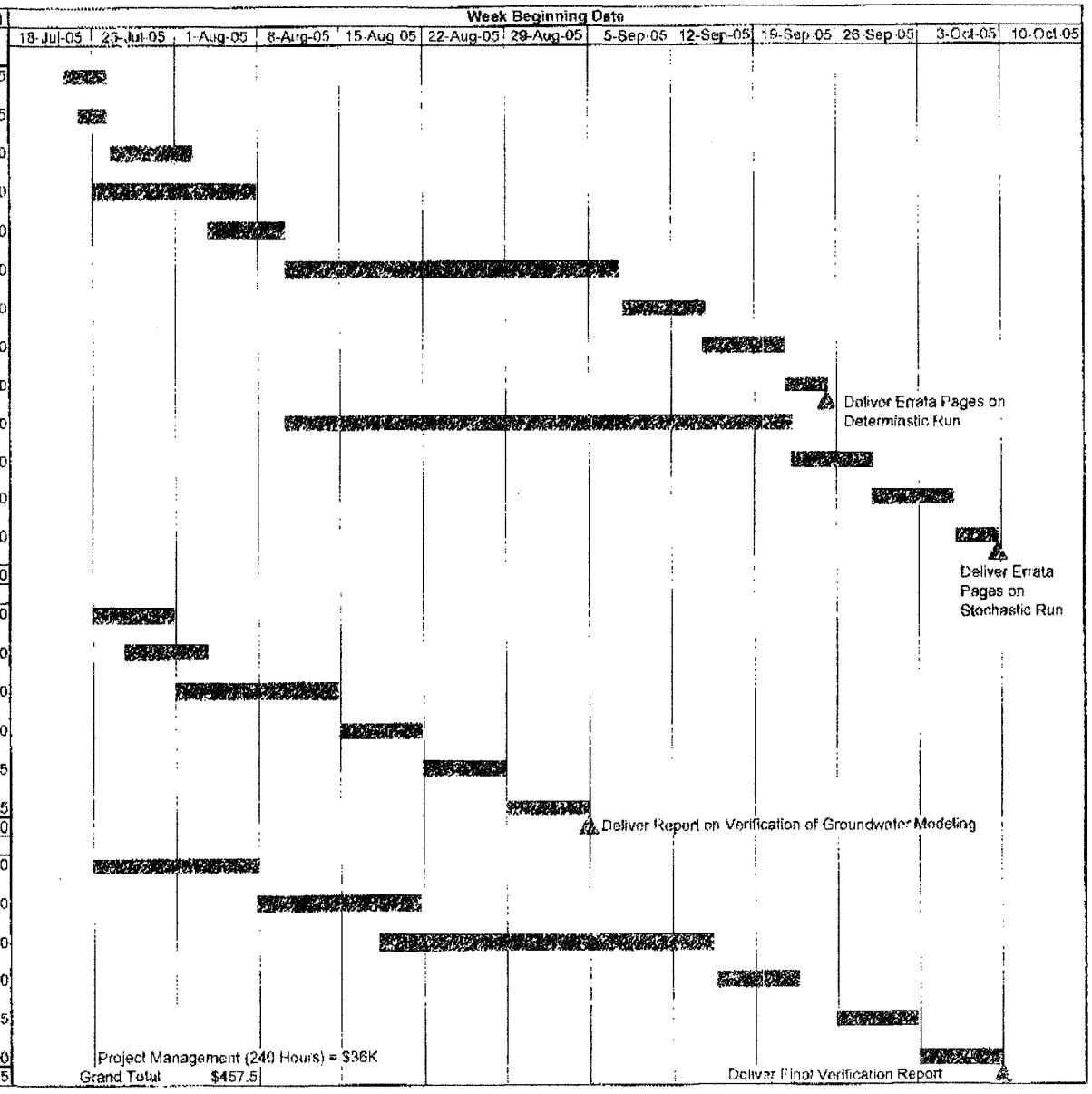
- ◊ Durations were prepared with consideration to unique resource constraints (both computational and human).
- ◊ Staff commitment for the ongoing composite analysis must be a second priority to this effort.
- ◊ The use of the embedded templates as a means to verity input parameters is acceptable
- ◊ Historic software versions remain appropriate (e.g. groundwater models have been updated)
- ◊ No additional reanalysis will be determined to be necessary as a result of the independent verification activities.
- ◊ Assume historic software compilation is compatible with the new operating system.
- ◊ Errata pages are sufficient and a full revision of the HSW-EIS is not required.
- ◊ An average hourly rate of $150/hr was used for costing
- ◊ No cost or schedule contingency is provided.
- ◊ Estimate assumes a dedicated project manager funded at 50%.
- ◊ Estimate does not include the ongoing cost of litigation discovery support (e.g. answering interrogatories and producing documents)
- ◊ Estimate does not include external (e.g. DOE/DOJ) reviews and revisions.

Overall Cost and Schedule:

The schedule prepared for the identified corrective actions will allow most of the effort to be completed this fiscal year for a total cost of $457K as detailed on the attached resource loaded schedule.

Schedule and Cost Estimate

#	Task	Hours	Cost ($K)
	Resolution of SAC Modeling Issues		
1	Verification of SAC errors	10	$1.5
2	Acquire Historic Software Version	10	$1.5
3	Compile & Test on New Op Syst	180	$27.0
4	Acquire, QC, & Correct Input Files	240	$36.0
5	Validation & Testing	80	$12.0
6	Run Deterministic Case	320	$48.0
7	Analyze Results & Prepare Errata Pages	160	$24.0
8	PNNL QC & Management Review	60	$9.0
9	Revise Errata Pages	40	$6.0
10	Run Stochastic Cases	640	$96.0
11	Analyze Results & Prepare Errata Pages	160	$24.0
12	PNNL QC & Management Review	60	$9.0
13	Revise Errata Pages	40	$6.0
	Sub-Total	2000	$300.0
	Independent Verification of Lawsuit Related Modeling Results		
14	Identification of Critical Analytical Elements	20	$3.0
15	Obtain Historic Modeling Runs	40	$6.0
16	Review of Input & Output Files & EIS	80	$12.0
17	Assessment/Conclusions	40	$6.0
18	PNNL QC & Management Review	30	$4.5
19	Revise Assessment Report	30	$4.5
	Sub-Total	240	$36.0
	Independent Verification of Other Modeling Results		
20	Identification of Critical Analytical Elements	80	$12.0
21	Obtain Historic Modeling Runs	200	$30.0
22	Review of Input & Output files & EIS	160	$24.0
23	Assessment/Conclusions	40	$6.0
24	PNNL QC & Management Review	50	$7.5
25	Revise Assessment Report	40	$6.0
	Sub-Total	570	$85.5



PLAN OF ACTION AND MILESTONES (POA&M) TO RESPOND TO DATA QUALITY ISSUES IDENTIFIED IN THE HANFORD SOLID WASTE ENVIRONMENTAL IMPACT STATEMENT (HSW EIS)

PURPOSE

The purpose of this POA&M is to document the activities that the Department of Energy (DOE) will perform to determine the extent of data quality issues as they relate to the HSW EIS. DOE will solicit State of Washington comments regarding the activities that will be performed and revise the POA&M as necessary.

BACKGROUND

As part of the litigation involving receipt of offsite waste and the HSW EIS, the Court allowed the State of Washington a limited amount of discovery pertaining to iodine-129, technetium-99, and groundwater analyses. While compiling information to respond to the State's discovery request, Battelle discovered three data quality issues within the data sets used for the cumulative groundwater impact analysis:

1. **Inventory Discrepancies:** The waste inventory for a portion of solid waste sources published in a table in the HSW EIS were found to be different from those used in the release model files in the System Assessment Capability (SAC).

2. **Release of Iodine 1-129:** Within the HSW EIS, the cumulative groundwater analysis and all of its results are discussed and portrayed as 10,000-year analyses. However it was discovered that the iodine-129 release models for both "solid debris" and "cement" were executed for only 1000 years. The error did not affect the analysis of the other analytes, other waste forms, or the remainder of the simulation.

3. **Inconsistent Cement Release Model Parameters:** Some release model parameters (diffusion coefficient and the area-to-volume ratio) for the diffusion of waste through a cement waste used in the models were found to vary from those reported in a table in the HSW EIS.

Upon discovery of these issues, Battelle promptly notified the DOE who, in turn, promptly notified the Department of Justice, the State of Washington, and the Court.

REVIEW APPROACH

The focus of the review is identification of data quality issues as they related to the HSW EIS. This will be done through quality assurance reviews of modeling assumptions, approaches, input data, and results against descriptions in the HSW EIS and HSW EIS reference documents. Specific actions to address HSW EIS data quality issues will be dependent on nature of those issues and will be subject of a follow-up POA&M.

The objectives of this review are to:

1. Identify the type and pervasiveness of data quality issues.

2. Recommend areas where additional reviews should be performed.

3. Recommend course(s) of action to address data quality issues.

Steps and milestones necessary to meet these objectives are outlined in the Plan of Action below.

Review of the models and codes used as part of the HSW EIS are not within the scope of this effort. In addition, assumptions used in HSW EIS will not be reviewed unless contradicted by technical bases contained in the HSW EIS or HSW EIS reference documents. These limitations recognize the findings of the Court and the limited scope of the discovery allowed by the Court. Further, it is recognized that such analyses are often, necessarily, simplifications of real world processes that are intended to result in practical and conservative bases for decision making rather than being fully accurate predictors of future events. However, DOE review team members will be provided an opportunity to express opinions on subjects outside the scope of this review

The DOE review team will be composed of people with relevant quality assurance technical expertise and certification, data management expertise, software quality assurance expertise, and technical expertise related to groundwater modeling. People with expertise in other technical area will support the review team as necessary. Battelle will provide data and information as requested to support the DOE review team.

PLAN OF ACTION

The purpose of this Plan of Action is to document the actions DOE will take to 1) identify HSW EIS data quality issues and 2) determine the adequacy of Battelle's QA/QC program in identifying those issues.

Establish DOE Corrective Action Plan and Review Team

1. Prepare the draft DOE POA&M.
   ACTION: RL
   DUE: 8/5/05

2. Obtain EM approval of draft DOE POA&M.
   ACTION: EM
   DUE: 8/10/05

3. Propose DOE review team.
   ACTION: EM

DUE: 8/12/05

4. Solicit and obtain State of Washington comments on the initial DOE POA&M and the design of the review to identify data quality issues.
   ACTION: EM
   DUE: 8/17/05

5. Address State of Washington comments and revise the DOE POA&M as necessary.
   ACTION: RL
   DUE: 8/24/05

6. Approve final POA&M and finalize DOE review team.
   ACTION: EM
   DUE: 8/29/05

7. Determine required contract direction to and funding for Battelle to support review team needs.
   ACTION: RL
   DUE: 8/19/05

8. Start preparation of the assessment plan for conducting the DOE review and identifying lines of inquiry.
   ACTION: Review Team
   DUE: 8/22/05

9. Prepare an assessment plan for conducting the DOE review.
   ACTION: Review Team Lead
   DUE: 9/7/05

10. Approve assessment plan.
    ACTION: EM
    DUE: 9/9/05

11. Recommend additional reviews that should be conducted and/or actions to address HSW EIS data quality issues.
    ACTION: Review Team
    DUE: 10/7/05

Identify Data Quality Issues in the HSW EIS

1. Start review to identify HSW EIS data quality issues.
   ACTION: Review Team
   DUE: 9/14/05

2. Review findings from Battelle's efforts to identify HSW EIS data quality issues.
   ACTION: Review Team
   DUE: 9/30/05

3. Perform a statistically significant sampling of data and conclusions to identify data quality issues in the alternative specific groundwater analysis and the cumulative groundwater analysis (or determine no additional issues exist).
   ACTION: Review Team
   DUE: 9/30/05

4. Identify data quality issues in the alternative-specific human health and safety analysis and the alternative-specific transportation analysis (or determine that no additional issues exist). The level of effort required would be dependent on the adequacy of Battelle's QA/QC program in identifying HSW EIS data quality issues. If inadequacies exist, a statistically significant sampling of data and conclusions to identify discrepancies in these analyses will be performed. If the program and program implementation are adequate, a check of sufficient coverage (breadth and depth) of these analyses will be performed to identify any data quality issues (or provide some level of confidence that no issues exist).
   ACTION: Review Team
   DUE: 9/30/05

5. Recommend additional reviews that should be conducted and actions to address HSW EIS data quality issues.
   ACTION: Review Team
   DUE: 10/7/05

ROLES AND RESPONSIBILITIES

EM

1. Approve the draft and final DOE POA&Ms.

2. Solicit State of Washington comments on the draft POA&M.

3. Assign review team (personnel independent of the HSW EIS and of Battelle).

4. Approve assessment plan for identifying HSW EIS data quality issues.

State of Washington

1. Provide comments on the initial DOE POA&M and the design of the review to identify data quality issues.

Other DOE Headquarter Elements

1. Provide support as requested by (and agreed upon with) EM.

Richland Operations Office

1. Prepare initial and revised POA&Ms.
2. Provide review team members or support as needed.
3. Provide direction and funding to Battelle to support review team needs.

DOE Review Team

1. Prepare assessment plan for identifying HSW EIS data quality issues.
2. Identify data quality issues consistent with the assessment plan.
3. Recommend additional reviews and/or actions to address HSW EIS data quality issues.

Battelle

1. Provide data and information as requested to support the DOE review team.

6.

SCHEDULE

Draft – Draft – Draft
Attorney-Client Privileged

The U.S. Department of Energy has been advised by Battelle, the support contractor on the 2004 Final Hanford Site Solid Waste Program Environmental Impact Statement (HSW EIS), that technical staff has identified some differences between data inputs to the groundwater cumulative impact modeling and information describing that modeling in the HSW EIS.

Battelle, which operates DOE's Pacific Northwest National Laboratory (PNNL), developed the model used in the groundwater analysis in the HSW EIS and supported DOE in the preparation of the document.

The HSW EIS is the subject of litigation between the State of Washington and DOE. DOE notified both the Federal Court and the State of the discrepancies found by Battelle.

In the HSW EIS, a cumulative impacts modeling tool was used to predict the future groundwater impact of all waste disposals at Hanford. The model includes inputs for contaminant inventory, contaminant release, and transport of contaminants through the vadose zone (below the surface but above the groundwater) for each waste source at Hanford. That information was fed into a single site wide groundwater modeling tool, which estimated the potential release of contaminants to the Columbia River.

Battelle staff identified inconsistencies affecting three data sets used for the groundwater cumulative impacts analysis -- the inventory of contaminants within the solid waste deposits that could be released to the vadose zone, the length of time releases were modeled for one contaminant, and the model parameters defining contaminant releases.

DOE has initiated a comprehensive review of the groundwater cumulative impact analysis and will verify the accuracy of other areas of the HSW EIS. Based on this review, DOE will decide whether any further National Environmental Policy Act (NEPA) analysis is needed. Any additional NEPA analysis will include a public process.

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ATTORNEY CLIENT AND ATTORNEY WORK PRODUCT PRIVILEGED

DRAFT

Questions and Answers related to the Report of the Review of the Solid Waste Environmental Impact Statement (EIS) Data Quality, Control and Management Issues

1. How will the results of this Report impact the Hanford Solid Waste EIS and subsequent Record of Decision?

A. DOE is continuing to study the impact of this Report on the decisions that are supported by the HSWEIS. DOE plans to prepare additional NEPA documentation to address the concerns raised by the Report including an analysis of potential future impacts to groundwater from disposal activities. While the NEPA analysis is pending DOE will not import offsite waste to Hanford with the exception of limited amounts of waste previously agreed to by the State. DOE will continue to evaluate the potential impacts of the findings on other matters addressed by the HSWEIS. DOE remains committed to completing the ongoing cleanup of the Hanford Site.

2. Do the Hanford Solid Waste EIS and Tank Closure EIS share the same groundwater analyses? How does the results of this Report affect the Tank Closure EIS?

A. No. The Tank Closure EIS does not use the same groundwater analysis as used in the HSW-EIS. Information has been updated. As part of the lessons learned process the Quality Assurance process being applied to the TC EIS will be evaluated and modified if necessary to assure any lessons learned have been incorporated. Groundwater data used in the TC-EIS will undergo more comprehensive QA to ensure that similar issues do not exist.

3. What about the other EIS and NEPA activities that came before the Solid Waste EIS? Are they impacted too?

A. No. The issues raised by the Report are primarily quality control issues with contractor entry of data or configuration control in development of information for the Solid Waste EIS. Previous NEPA analyses are not impacted by these efforts.

4. How do the results of this Report affect all the groundwater analysis done to date at Hanford? Are they invalid?

A. The results of the Report do not affect other groundwater analyses done to date. The report deals with specific data entry and other configuration control errors made for the HSWEIS. Other analyses generated for other programs are not affected by the report.

5. Does this mean you have underreported current groundwater contamination at Hanford and in the Columbia River?

A. No. Current concentrations of constituents in groundwater and the Columbia River at Hanford are based upon actual monitoring of groundwater and surface water at Hanford. These results are reported in the annual groundwater and surface water monitoring reports that are made available to the public and summarized in annual Hanford Site environmental reports. These results are not impacted in any way by the findings.

6. Are you stopping any cleanup work at Hanford as a result of these findings?

A. No.

7. How do the results of this Report affect waste importation to Hanford?

A. DOE is continuing to study the impact of this Report on the decisions that are supported by the HSWEIS. DOE plans to prepare additional NEPA documentation to address the concerns raised by the Report analysis of potential disposal impacts to groundwater. While the NEPA analysis is pending DOE will not import offsite waste to Hanford with the exception of limited amounts of waste previously agreed to by the State.

8. How do the results of the Report impact waste exportation, such as shipments of transuranic waste to WIPP?

A. No impact will occur. The decision to ship Transuranic (TRU) wastes from Hanford to WIPP was not made on the basis of the HSWEIS. That decision was made on the basis of the WIPP Supplemental EIS II. DOE expects to continue to clean up Hanford and ship transuranic waste for disposal at WIPP.

9. Will the results of this Report have any impact on the lawsuit over waste importation?

A. DOE will share (or has shared) the results of the Report with the State of Washington and is discussing the impacts of DOE's proposed course of action with the State.

10. Do the results of this Report impact any current tank operations such as retrieval?

A. No. Retrieval activities were covered by the Tank Waste Remediation System EIS and are not impacted by the HSWEIS review.

11. What about any recent low-level waste disposal? Do you have to remove any of that waste?

A. No waste needs to be removed. No new disposal facilities have been utilized that are based on the analysis studied in the Report. All existing disposal facilities are addressed in other environmental analyses.

12. How will the results of this Report affect the DOE programmatic EIS on low-level and mixed low-level waste disposal?

A. The data deficiencies are specific to the HSWEIS and do not raise any question about the Waste Management Programmatic EIS.

13. How are you going to fix these analyses for the Hanford Solid Waste EIS and Tank Closure EIS documents?

A. DOE is continuing to study the impact of this Report on the decisions that are supported by the HSWEIS. DOE plans to prepare additional NEPA documentation to address the concerns raised by the Report including an analysis of potential future impacts to groundwater from disposal activities. As part of the NEPA lessons learned process the personnel working on the Tank Closure EIS will review the issues identified via this review and apply corrective actions if required.

14. Are you going to do a new EIS or a more comprehensive analysis of groundwater at Hanford?

A. DOE is continuing to study the impact of this Report on the decisions that are supported by the HSWEIS. DOE plans to prepare additional NEPA documentation to address the concerns raised by the Report analysis of potential disposal impacts to groundwater. While the NEPA analysis is pending DOE will not import offsite waste to Hanford with the exception of limited amounts of waste previously agreed to by the State. DOE will continue to evaluate the potential impacts of the findings on other matters addressed by the HSWEIS. DOE remains committed to completing the ongoing cleanup of the Hanford Site.

15. How long will it take to address these issues?

A. Some corrective actions have already begun such as checking QA processes and procedures. Other corrective actions, such as training, will take longer to complete.

16. How will this impact any future cleanup operations? Are you modifying any long-range plans in place?

A. No impact upon Hanford cleanup operations is expected. Some wastes from other DOE sites will be disposed or stored at locations other than Hanford and not sent to Hanford

17. Are you going to use this as a "lessons learned" around the DOE complex?

A. Yes. DOE will apply the lessons learned in this activity to future environmental documents prepared throughout the DOE complex.

18. What are you going to do differently in working with the Lab or other entities for groundwater and other analyses?

A. DOE will assure that the contractor has the appropriate level of quality assurance requirements for the task assigned. As a result of this specific review, the contractor involved will be required to prepare a corrective action plan to assure that these types of deficiencies will not occur.

19. How much more money is it going to cost to correct these problems?

A. Cost estimates and schedules related to the corrective actions have not yet been developed.

20. How will the State or EPA be involved?

A. DOE is discussing the level of State and EPA involvement with those organizations.

21. How will the public be involved if you have to redo parts of the EIS?

A. DOE will keep its commitment, made in the July 22, 2005, statement announcing the HSWEIS data and quality assurance review effort, for an opportunity for public review, comment, and participation in the additional NEPA analysis that DOE will prepare.

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HSW-EIS Review Report – Talking Points

- During July 2005, discrepancies in the data in the Hanford Solid Waste Environmental Impact Statement (EIS) related to the impact of waste disposal on groundwater were identified

- DOE performed an additional review of the EIS that included technical experts from other parts of the DOE complex, as committed to by Environmental Management's Principal Deputy Assistant Secretary, Mr. Charles Anderson

- Specific data discrepancies were found in data for potential groundwater impacts from disposal, human health, and transportation.

- The review found deficiencies in the Battelle Memorial Institute's control of data in the preparation and presentation of certain portions of work on the EIS project

- The review also found deficiencies in DOE's specification and oversight of Quality Assurance requirements (governing preparation of the work that might have prevented such errors)

- DOE takes the findings in this Report very seriously. As part of corrective actions, DOE will determine the significance of the deficiencies and/or perform selective additional analyses of the areas in question.

- DOE is also taking immediate action to ensure adequate specification and oversight of Quality Assurance requirements in current and future EIS's