ROCKY MOUNTAIN ARSENAL

Final
2010 Five-Year Review Report
for
Rocky Mountain Arsenal
Commerce City
Adams County, Colorado

Review Period: April 1, 2005–March 31, 2010

Volume II of III

Five-Year Review Site Inspection and Interview Checklists

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Prepared for:
Rocky Mountain Arsenal Remediation Venture Office
Department of the Army
Shell Oil Company
U.S. Fish and Wildlife Service

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Revision	Prepared By	Reviewed By	Approved By	Date	Pages Affected
0	Ellen Kaastrup EK	Scott Ache	John Edrich	09/23/11	All

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Laboratory Data Quality Assurance Review and Evaluation

U.S. Environmental Protection Agency (EPA) Summary and Observations with Remediation Venture Office (RVO) Responses and Clarifications

The following is the result of interviews, data reviews and subsequent document reviews performed from May 4 through May 12, 2010, as part of the 2010 Five Year Review (FYR) evaluation. The purpose was to understand the data quality processes in place for laboratory data at the Rocky Mountain Arsenal (RMA). The observations and recommendations presented below are based on interpretation of the data quality processes gained through these reviews and are subject to change based on future discussion and evaluation.

> ***RVO General Response*** *regarding the EPA's Laboratory Data Quality Assurance Review and Evaluation*
>
> *In addressing EPA comments 1 through 7 below regarding the EPA's Laboratory Data Quality Assurance Review and Evaluation, it should be pointed out that the RMA laboratory data quality program was developed over 20 years ago based on USATHAMA procedures and protocols. At the time that was the best system available, as EPA CLP protocols had not been developed for chemical agent analytes. To maintain program and data quality consistency, these processes have been kept in place. The RVO Chemical Quality Assurance Plan provides requirements for data to be assessed, qualified, and documented, and specifies that the RMA Quality Assurance Program (QAP) shall be used as the basis for development and implementation of quality requirements for project-specific plans and the analytical chemistry support program data collection and reporting requirements. The RVO CQAP details the analytical requirements necessary to meet the RMA QAP. Subtier documents required by the RVO CQAP, including the PMC CQAP and Data Validation Plan demonstrate a traceable flowdown of requirements for implementation. Outside laboratories contracted to provide analytical laboratory support are required by contract to comply with the CQAP requirements and are subject to audits to ensure compliance. The RVO is not aware of any breakdowns or disconnects in the implementation of this approved process that would call into question the assessment of chemical data produced over the course of the RMA remedy, and plans no changes to the processes in place except as indicated in the comment responses below.*

EPA Comment #1

The results of the laboratory data validation process are not transparent to the database users. It is currently unclear in the Rocky Mountain Arsenal Environmental Database (RMAED) which data have been reviewed/validated and which data have not. This lack of transparency is further complicated by a program in the RMAED that automatically assigns an 'A' or acceptable qualifier to the data after 45 days. At present, it is unclear what data has been identified as 'acceptable' as a result of data review vs. data that has been automatically qualified as 'acceptable' based on a computer program. EPA recommends that the RMAED should have a field or qualifier established to identify which data have been reviewed/validated and which data have not been reviewed/validated.

RVO Response:

The Program Management Contractor (PMC) is responsible for data validation and data review. Project managers also review their data and may submit correction letters for their own data in the RMAED. The Sample Tracking (STRACK) program will be modified for data going forward to indicate which lots have been validated by PMC. Data users can then calculate the percentage of their data that has been validated. The RMAED contains flags and codes that designate whether any data have changed.

In 2004 the Army approved development of the RTRAC Web program to check data for valid data format and valid values based on Army-approved lookup tables. RTRAC went online in January 2005. Subsequently, in February 2007 the Army approved the automatic acceptance of data after 45 days. Auto-approved data are distinctly flagged with a unique alpha-numeric combination to indicate that no individual has edited the data as a result of further data review or data validation. The following distinct alpha-numeric codes are used to demonstrate the data have only received automatic acceptance: 'A' in the rec_loc_flag field and the digit '1' in the loc_comm_num field. As shown in the chem_comm table, the digit '1' has the following definition: "Default value automatically assigned by RTRAC to all non-rejected data." After subsequent human review and validation, if any changes are made to the data, then the '1' is removed from the loc_comm_num field and a new location comment number is assigned. The new number and its comment are entered in the chem_comm table for user reference.

Furthermore, the Army also approved the RTRAC program to automatically reject data that missed holding times. Auto-rejected data are also distinctly flagged with a unique alpha-numeric combination to prove that no individual has edited the data as a result of further data review or validation. This specific alpha-numeric coding contains the letter 'R' in the rec_loc_flag field and the digit '0' in the loc_comm_num field. As shown in the chem_comm table, the digit '0' has the following definition: "Automatic rejection; Missed holding time; data_qual flag=K or L; rec_loc_flag=R." Subsequently, after human review and validation, if any changes are made to the data, then the '0' is removed from the loc_comm_num field and a new location comment number is assigned. The new number and its comment are entered in the chem_comm table for reference by users.

Two recent (but rare) examples of auto-rejected data being overwritten by subsequent human review are described below:

- Volatile samples missed holding times and were automatically flagged by RTRAC with the 'R' rec_loc_flag and the '0' loc_comm_num. U.S. Geological Survey (USGS) and URS further reviewed the data and sent a letter to the RMAED data manager on September 22, 2008. They concluded that their volatile organic analysis (VOA) data should be accepted and they requested a change to the designation of their data. The RMAED database manager changed the 'R' flag to an 'A' flag and changed the '0' to '1938' to reference the chem_comm database containing the following comment: "On 2008-09-22 USGS accepted VOAs for lot ULN. ARDL storage error. rec_log_flag = A." As an action to

address this observation, the database manager will be requested by a change letter to change the flag code from 'A' back to 'R' (rejected) on the basis of the missed holding time.

- The only other recent example like this occurred in 2002. The RMAED data loading program (prior to RTRAC Web) flagged VOA data because of missed holding times. The data were flagged as rejected (as documented by the record analysis attachment to letter #2550). Subsequently, after review by the PMC and the Army chemist, the Army chemist sent a letter to the RMAED database manager requesting acceptance of the data. The RMAED database manager changed the 'R' flag to an 'A' flag and changed the '0' to '1804' to reference the chem_comm database containing the following comment: "Override rejection in QC letter #2550 with QC #2638. Accept data, June 13, 2002."

EPA Comment #2

The Remediation Venture Organization (RVO) Chemical Quality Assurance Plan (CQAP) (RVO 2009), Program Management Contractor (PMC) CQAP (PMC 2007), PMC Environmental Data Validation Plan (PMC 2006) and the Post-Laboratory Water Quality Assessment Procedure (RVO 2007), were reviewed as part of the FYR interview/data review process. However, the PMC CQAP and PMC Data Validation Plan could only be reviewed in person, and these PMC plans are not in the Administrative Record Facility (ARF). It is unclear why these plans, which control how samples are analyzed, evaluated and reported, are not part of the Administrative Record. This is especially problematic because the RVO CQAP, which is in the ARF has no discussion of the data validation program. EPA recommends that these documents and any other data quality controlling plans and procedures be submitted to the Administrative Record Facility.

RVO Response:

The RVO Chemical Quality Assurance Plan requires data to be assessed, qualified, and documented, and references the EPA National Functional Guidelines for informational purposes only. Additional requirements documented in the RVO CQAP are designed to provide specific validation guidance for Performance Based Methods (PBM). Performance Based Methods were developed at the inception of the RMA program to address the analysis of target analytes not certified by the EPA CLP Program. The PMC CQAP includes guidance for Method Certification which includes calculation of the Method Reporting Limit (MRL). Data validation is addressed in the PMC Chemical Quality Assurance Plan by reference to the PMC Data Validation Plan. As a subtier document under the PMC Chemical Quality Assurance Plan, the PMC Data Validation Plan implements these requirements and includes data evaluation checklists that utilize the EPA National Functional Guidelines for guidance. The Guidelines are referenced in the PMC Data Validation Plan. Therefore the PMC Data Validation Plan does not mimic the RVO Chemical Quality Assurance Plan, rather, it implements the RVO plan requirements. With this flow down and traceability adequately documented in the plans, no revisions to the RVO Chemical Quality Assurance Plan are necessary. The initial version of the PMC Chemical Quality Assurance Plan (Revision 0) was transmitted to the RVO for review to ensure that the content and structure met the expectations of the RVO, and is on file at the JARDF. The updated versions of the PMC Chemical Quality

Assurance Plan (Revision 4) and PMC Data Validation Plan will be submitted to the JARDF to further support the RVO CQAP.

EPA Comment #3

The RVO CQAP links the data assessment, qualification, and documentation of laboratory results to the most recent editions of the EPA National Functional Guidelines for Data Review. However, the PMC CQAP only references the PMC Environmental Data Validation Plan (and project specific QA plans) and does not discuss adherence to the EPA National Functional Guidelines. Therefore, it is unclear if the PMC CQAP and Data Validation Plan is consistent with the RVO CQAP requirements. EPA recommends that the link between the PMC CQAP requirements and the EPA National Functional Guidelines be defined, or justification provided for not using the EPA National Functional Guidelines.

RVO Response:

See response to Comment #2 above. The RVO CQAP references Functional Guidelines for informational purposes. Additional requirements documented in the RVO CQAP are designed to provide specific validation guidance for Performance Based Methods. Performance Based Methods were developed at the inception of the RMA program to address the analysis of target analytes not certified by the EPA CLP Program. Performance Based Methods are the basis for the RMA analytical program and have been since its inception, and therefore supersede Functional Guidelines for the program at RMA. Guidelines present in the RVO CQAP for Performance Based Methods are present in the PMC CQAP including the use of identified qualifiers. The PMC Data Validation Plan references Functional Guidelines and in conjunction with the PMC CQAP contains specific guidance for the evaluation of analytical data generated by Performance Based Methods.

EPA Comment #4

The PMC Data Validation Plan contains checklists for checking the data package. The checklists are comprehensive and have reasonable control levels that correspond closely to EPA functional guidelines. However, there were no written actions in the PMC Data Validation Plan that correspond to actions identified in the EPA functional guidelines. As a result, it is unclear how the data qualifiers are applied based on the checklist results (the data qualifiers are not discussed in the Data Validation Plan). Instead, the qualifiers are applied primarily through "professional judgment". Therefore, the Data Validation Plan does not provide prescriptive criteria that would insure that qualification of the data was consistent over the five-year period. EPA recommends that procedures for applying data qualifiers based on the data validation checklists be identified or prepared.

RVO Response:

The PMC Data Validation Plan in conjunction with the PMC Chemical Quality Assurance Plan contains specific guidance for the evaluation of RMA analytical data. The quality control requirements for the development of certified methods and required laboratory audits are clearly defined in the PMC Chemical Quality Assurance Plan. The

individual laboratory contracts include applicable sections of the PMC Chemical Quality Assurance Plan. The laboratory data are evaluated for adherence to these requirements, and data qualifiers specific to the program and identified in the PMC Chemical Quality Assurance Plan are applied when appropriate. The data qualifiers utilized are not those identified in EPA Functional Guidelines but are those specific to the RMA program and have been utilized since its inception. In addition, the contracted laboratories are periodically audited to ensure compliance with the laboratory quality assurance requirements. All laboratories performing work in support of RMA remediation activities are also required to analyze Performance Evaluation samples prepared by an independent source. The PMC uses the results of the Performance Evaluation samples as an additional tool to evaluate the performance of the laboratories.

EPA Comment #5

With respect to the Post-Laboratory Water Quality Assessment Procedure (RVO 2007), this procedure tends to obscure the line between data evaluation for the purpose of data quality or validity, and data evaluation for the purpose of data usability. EPA recommends that the Procedure only be applied as a means of assessing data usability for the intended purpose outlined in a project SAP or QAPP. It is also not clear that a data validation is performed prior to initiating the data evaluation discussed in the procedure, which is assumed in EPA guidance documents referenced in the Procedure. The use of the 'Z' qualifier in the Data_Qual field in the Chem_Rec table, as an indication of data usability, is appropriate. However, the use of the Procedure to qualify data as rejected (in the Rec_Loc_Flag field) is not appropriate if the results of the data validation process do not indicate that the data is of unacceptable quality.

RVO Response:

The EPA recommendations concerning the means of assessing data usability for the intended purpose outlined in a project Sampling and Analysis Plan (SAP) are currently stated in the procedure. It is also clear that the lab data validation is required prior to implementing the procedure.

The comment stating "the use of the Procedure to qualify data as rejected (in the Rec_Loc_Flag field) is not appropriate if the results of the data validation process do not indicate that the data is of unacceptable quality" is not valid, as the primary purpose of the procedure is to review data that the lab data validation process has indicated was acceptable. The data reviewed using this procedure are only for data that do not appear to meet the data quality objectives identified in the appropriate sampling plan. It is important to note that the statistical confidence intervals for the analytical method reporting limits MRLs) are 95 percent as indicated in the RVO CQAP in Section 4.2.1.2. This equates to a false negative error (the chance of determining an analyte is not present above the method reporting limit (MRL) when, in fact, it is present) and a false positive error (the chance of determining an analyte is present above the MRL when, in fact, it is not) of five percent. In other words, the possibility of any single analysis producing an erroneous result, assuming all identifiable factors and inputs are perfect, is between zero and five percent. This is commonly referred to in statistics as the term "chance and chance alone."

The Post-Laboratory Water Quality Assessment Procedure is designed to review data that appear to fall into this zero to five percent range or may be invalid due to a variety of field factors, including sampling and hydrogeologic issues. Data reviewed using this procedure have been validated by RMA laboratory data validation procedures. The purpose of the procedure is to investigate if enough evidence exists to make a reasonable determination of the validity of the data value based on factors outside the scope of a laboratory data validation. Therefore, based on the statistical design associated with the MRL and factors outside the realm of laboratory data validation, it is possible to make a case for rejection of a data point that has passed the laboratory data validation process.

As noted in the title of the document in question, the assessment is performed after the data have been deemed acceptable from an analytical perspective (Post-Laboratory). In all instances during the application of this procedure the PMC Data Validation Specialist was consulted to ensure the data were validated prior to the commencement of the Post-Laboratory investigation. In addition, Section 1.0 of the Post-Laboratory Assessment Procedure states "For water-quality data that has passed all laboratory quality-control evaluations, yet appears questionable, it is desirable to determine and document analytical or sampling errors that may not have been detected during the rigorous pre-release review by the laboratory analysts and quality-control staff."

The EPA is correct that the Post Laboratory Water Quality Data Assessment Procedure is only used on data that appear anomalous relative to other data collected for the same location. The decision to utilize the procedure is the responsibility of the entity generating the data and is based on an internal review of the data conducted by the data generator. The RVO recognizes the dynamic nature of water quality data; however the Post Laboratory Water Quality Data Assessment Procedure is utilized for data that appears anomalous to a degree that exceeds what one would expect due to natural factors. The procedure is implemented on an extremely limited basis; in fact it has been utilized on only 0.0027 percent of the CSRG data generated since the procedure was implemented in February 2007 (two out of over 74,000 data points).

The RVO will revise the Post Laboratory Water Quality Data Assessment Procedure in a manner that data will not be rejected based on the procedure. Data evaluated by the procedure that is not considered usable will be assigned a "Z" data qualifier (questionable data). Also, as noted in the response to EPA Comment 40e above, in regard to the DIMP detection above the CSRG in well 37032 that occurred in August 2009, the RMA Environmental Database will be amended to change the August 10, 2009 sample result flagging code for the DIMP result from "R" (rejected) to "Z" (questionable). The RVO will notify the Regulatory Agencies in the future of potential application of the Post Laboratory Water Quality Data Assessment Procedure, and when resampling is performed due to data assessment.

EPA Comment #6

The change control process that is used to change qualifiers for data in the RMAED database does not appear to be documented and controlled in an appropriate manner. Prior to February 2007, written documentation that was sequentially numbered and had a consistent content and

format, were submitted to the RMAED for documenting changes to qualifiers in the database. However, it is unclear that these change control documents were submitted to the ARF for archive. Currently, the documentation for approximately ten years of database changes is kept in a file cabinet with no apparent plans for submittal to the ARF. EPA recommends that this documentation be submitted to the ARF. Since February 2007, the change control documentation is not being prepared with a consistent content or format, is not being sequentially numbered, and is not being filed or submitted to the ARF. EPA recommends that a procedure be adopted for the change control process which includes the format for the documentation, required justification and description of the change, and requirements for maintaining and archiving these documents.

RVO Response:

On February 14, 2007, the Army Chemist wrote a memorandum to the Army Resources and Records Manager at RMA, proposing that data be automatically accepted after 45 days unless DPRA (RMAED database contractor) is notified to reject data per Army Chemist or PMC notification.

On February 20, 2007, the Army Resources and Records Manager concurred with the memo because 99.95 percent of the data passing through RTRAC Web was manually reviewed and validated as acceptable by the Army and PMC Chemists. Therefore, this redundant and time-consuming data acceptance process was discontinued by the Army. Automatic data acceptance began immediately. Since that time, DPRA has received occasional notification via email concerning data rejection or data changes. The RMAED database manager subsequently makes the changes and makes reference to them in the chem_comm table.

The RVO concurs with EPA's recommendation that a procedure be adopted for the change control process, which includes a format for the documentation, required justification and description of the change, and requirements for maintaining and archiving these documents.

The following modifications will be made to the process. All parties that request changes to the RMAED will send change requests to the PMC. The PMC will generate a QC letter to notify the RVO and all users involved in the change control process. Upon receipt of the QC letter, the RMAED database manager will 1) assign a sequential number to the QC letter; 2) enter that number in the loc_comm_num field in the chem_rec table; 3) also enter that same number in the univ_comm_num field in the chem_comm table; 4) and submit the numbered QC letter to be scanned. The resulting PDF can then be viewed like data packets by using the STRACK program.

EPA Comment #7

Based on the interview results, it is possible for data qualifiers in the RMAED to be changed by RMA staff through the PMC Environmental Data Validation Procedure, the Post-Laboratory Procedure, or through processes outside of these procedures. However, it is not clear what qualifications are necessary for RMA staff to authorize changes to the data qualifiers or that all

RMA staff are using consistent procedures or criteria for authorizing changes to the database qualifiers. Review of some of the change control instructions indicate that in some cases the RMA staff are using professional judgment as the only criteria for changing qualifiers in the RMAED. EPA recommends that the qualification of data in the RMAED be performed in a more rigorous manner that includes a centralized approval process, better documentation of the reason for the qualifier change, and a way to differentiate which procedure was used to apply the qualifiers.

RVO Response:

DPRA, Incorporated maintains the RMAED under contract to the Army. DPRA proposed a centralized approval process as discussed in the response to Comment #6.

EPA Review Notes from Interviews and Data Reviews

Following are the results of reviews performed as part of the laboratory data quality assessments:

Date of Interview: May 4, 2010

Location: Trailer Z92, Rocky Mountain Arsenal
Participants:
Kathy Weinel, Lab Coordinator, PMC (Interviewee)
Deborah Hosford, Data Validation, PMC (Interviewee)
Bruce Fritz, Lab Data Input, DPRA (Interviewee)
Ron Bertram, EPA (Observer)
Steve Singer, PWT (Interviewer for EPA)
Bill Lutz, PWT (Interviewer for EPA)
Tom Martella, TCHD (Observer)
Vince Stewart, TCHD (Observer)
Rick Beardslee, Army (Observer)

The focus of the interview was to establish the process by which laboratory results are provided by the contract laboratories to the RVO and subsequent data input, data checking, data quality assessment and finalization of data results in the RMAED.

Question: Where were the samples analyzed during the FYR period?

Response: Per Kathy Weinel, During the FYR, data were analyzed both at an onpost laboratory managed by PMC and at off-post commercial laboratories of which ARDL was the main laboratory. The on-site lab did mostly soils analysis and was shut down in June 2008.

Question: Does the PMC lab group handle all laboratory work for the RMA?

Response: Per Kathy Weinel, all laboratory results come into the PMC laboratory group no matter what project or group collects the samples. Sample collection, packing, and shipping are the responsibility of the individual projects.

Question: What are the controlling documents for the laboratory data quality processes?

Response: Per Kathy Weinel, The PMC Chemical Quality Assurance Plan (CQAP) is attached to the statement of work for the laboratories. There is also an RVO CQAP that is a higher tier document that the PMC follows to write the PMC CQAP. The PMC CQAP provides instruction to the laboratory on how to perform the chemical analyses and identifies the minimum quality control requirements. Data Validation is controlled by the PMC Environmental Data Validation Plan. The PMC CQAP includes a list of data qualifiers that is used by the labs for qualifying data.

Question: EPA has a copy of the RVO CQAP. Can EPA get copies of the PMC CQAP and Data Validation Plan?

Response: Per Kathy Weinel, the PMC CQAP and PMC Data Validation Plans are considered proprietary documents that would require management approval for distribution. Note: It was later determined that these documents were not in the ARF and that copies of the PMC documents would not be provided to EPA. EPA was only allowed to view the PMC documents on site, which was done by PWT.

Question: How are the laboratory deliverables provided to the PMC lab group?

Response: Per Kathy Weinel, the lab results come as a formatted electronic data deliverable (EDD). The hard copy lab report is required to be received 10 days after receipt of the EDD. Per Bruce Fritz, the EDD is first checked by the laboratory using the "RTRACK" program developed for RMA. After the lab sends the EDD to RMA, the RTRACK program performs the same check as the data is loaded into the RMAED.

RVO Clarification: *RVO concurs.*

Question: How are the laboratory qualifiers applied to the data and by whom?

Response: Per Kathy and Bruce, the EDD will have qualifiers that come from the lab that are uploaded into the Chem_Rec table in the RMAED (NOTE: the Chem_Rec table holds all of the RMA analytical results). The RTRACK program will automatically add the qualifiers dealing with holding time exceedances. These qualifiers will show up in the Flag_Code and Data_Qual and Rec_Loc_Flag fields in the RMAED. The Flag_Code field primarily qualifies the data based on field and lab preparation issues. The Data_Qual field will have qualifiers based on issues with the laboratory analysis, and the Rec_Loc_Flag field will qualify based on data acceptability. The Rec_Loc_Flag initially contains a 'P' flag, automatically assigned by the RTRACK program indicating that the results are preliminary. Later this field will be changed to indicate that either the data is acceptable (A) or rejected (R). When the results of the validation are completed, the data_qual field can be updated with additional qualifiers and the Rec_Loc_Flag field can also be changed.

RVO Clarification: *Most all of the data does in fact contain the letter 'P' (for "Pre-QC, pending final QC checks") when initially processed by the RTRAC Web program. However, whenever data misses holding times, RTRAC Web immediately flags the data as "rejected" (rec_loc_flag = 'R') upon initial processing.*

There is a 45-day period in which the data input to the RMAED occurs, checks against the EDD and the Chain of Custody using an 'STRACK' program are performed, and any data validation or other data quality assessment is performed. However, if no manual changes to the Rec_Loc_Flag have occurred during this time period, the RMAED has a program that automatically replaces the 'P' flag with an 'A' to this field in the Chem_Rec table indicating that the data is acceptable.

RVO Clarification: *RVO concurs.*

Question: After the data checking and validation process is complete are there other actions that can cause the qualifiers in the Chem_Rec table in the RMAED to be changed?

Response: Per Kathy, She is the 'Data User' for the Basin F, HWL, and ELF monitoring projects. Data qualifiers can be changed by the data user.

Question: What procedures would you follow to determine that the data qualifiers should be changed?

Response: Per Kathy, She indicated that she might look at the data and see if it was useable based on the project objectives which would be identified in a SAP.

NOTE: At this point PWT handed her the RVO procedure titled *Post-Laboratory Water Quality Data Assessment Procedure*. PWT asked why she had not identified this RMA procedure in her response. Her answer was that this procedure was for the water team and that she would not necessarily use it. (Note: this procedure is identified to be used for all water projects at RMA).

Question: Does data ever get deleted or overwritten in the Chem_Rec table in the RMAED?

Response: Per Kathy and Bruce, data are almost never deleted from the RMAED. This would only happen when, for example, the Performance Evaluation (PE) data would have been uploaded into the RMAED by mistake. They went on to explain that the PE data does not get uploaded to any database and is only in hard copy form. Data would only get overwritten in the RMAED if the lab were to re-send the results of a re-analysis that was performed within the holding times and based on communication between the PMC and the lab. The results of a re-sampling would both be in the RMAED.

RVO Clarification: *RVO concurs.*

Question: How is communication documented between the PMC and the laboratory, that results in a re-analysis or other changes to data?

Response: Per Kathy, The labs do not routinely call PMC when they receive a high value, only for a problem with performing the analysis. NOTE: It was not clear if the results of these problem discussions and the lab actions resulting from the discussions are documented.

Question: How are the lab packages that are validated chosen and what percent validation and verification is performed?

Response: Per Deb Hosford, she randomly selects data packages to do full validation, and the requirement is to do 25 percent validation. However, priority for validation is often placed on higher priority parameters (organics?). Typically the percent validation is higher than 25 percent. Note: She did not indicate that there is a verification process for the remaining 75 percent of the data other than what may be performed by the laboratory as part of their quality control processes.

Question: How do you document what percent validation is performed? Is it an annual percentage or based on some other criteria.

Response: Per Deb Hosford, she does not track the percent validation on an annual basis, it is typically done on a project-specific basis and the percentage is recorded in project data summary reports (DSRs).

Question: The groundwater monitoring programs and the treatment system monitoring programs do not provide DSRs. How do you document what percent validation is performed, and how would the regulatory agencies (RAs) and other database users know how much was done?

Response: Per Deb and Kathy, their group does not get involved in how data are reported for the various projects so they don't know how that information would be communicated.

NOTE: Based on the responses, it is unclear how much validation is performed for projects that do not provide DSRs.

Question: Is there some way that the results of the validation are recorded in the RMAED so that a user could tell what data was validated and what data was not?

Response: Per Deb and Kathy, there is no easy way to do this. Data that have been qualified with an 'R' is typically the result of validation, and some of the qualifiers in the Data_Qual field are the result of the validation process. Deb keeps a spreadsheet that records all of the lab packages that she validates. But this is an internal spreadsheet for her use.

Question: How are the results of the validation that changes the qualifiers in the RMAED documented?

Response: Per Bruce and Kathy, the result of the validation goes onto a validation checklist and it is believed that this checklist is retained in the ARF.

RVO Clarification: *Bruce Fritz is not familiar with the PMC validation checklist. This checklist is a PMC document. The completed validation checklists are transmitted annually to the ARF as part of the PMC laboratory records.*

However as far as changing the RMAED, Deb will send a letter to Bruce (email) with the results of the validation and instructions as to what qualifiers to change.

NOTE: Based on a follow-up question to Kathy on the phone, the instructions that Deb sends to Bruce are not retained by Deb. However, Kathy believes that Bruce retains these instructions. See follow-up interview with Bruce for additional information.

Question: How can a user determine what the reasons were for adding an 'R' to data in the RMAED?

Response: Per Bruce, there is a field in the RMAED called Loc_Comm_num that contains a sequential four-digit code. This code can be used to look up a short discussion of the reason that the data were rejected in another table called Chem_Comm.

RVO Clarification: *Manual entries in the loc_comm_num field now contain up to four-digits in this code. However the '0' code is automatically added by RTRAC to rejected data due to missed holding times. Currently, there are 328 records in chem_rec that contain the '0' code. Furthermore, the '1' code is automatically added to all other records that enter the RMAED via RTRAC. When data is auto-accepted after 45 days, the '1' code remains forever in the loc_comm_num field, unless data are changed according to human data review and validation. Approximately 5.5 million records contain the '1' code. These two automatic entries for loc_comm_num codes represent over 96 percent of all 5.7 million records in the chem_rec table.*

Follow-up Document Review: May 11 and 12, 2010

Location: Building Z92, Rocky Mountain Arsenal

RVO Representative:
Deb Hosford, Kathy Weinel, PMC

Reviewer:
Bill Lutz, PWT for EPA

The RVO CQAP, PMC CQAP and PMC Environmental Data Validation Plan were reviewed. However, the PMC CQAP and PMC Data Validation Plan could only be reviewed in person, and these PMC plans are not in the ARF. However, is it unclear why these plans, which control how samples are analyzed, evaluated and reported are not part of the Administrative Record. This is especially problematical because the RVO CQAP, which is in the ARF has no discussion of the data validation program.

In the RVO CQAP, Section 5.11.6 specifically links the data assessment, qualification and documentation of laboratory results to the most recent editions of the EPA National Functional Guidelines for Data Review. However, the PMC CQAP only specifically references the PMC Environmental Data Validation Plan (and project specific QA plans) and does not discuss adherence to the EPA National Functional Guidelines. Therefore, it is unclear if the PMC CQAP and Data Validation Plan is consistent with the RVO CQAP requirements.

The PMC Data Validation Plan includes checklists for checking the data package. The checklists are comprehensive and have reasonable control levels that correspond closely to EPA functional guidelines. The checklists consist of yes/no boxes for the various validation criteria. However, there were no written actions in the PMC Data Validation Plan that correspond to actions identified in the EPA functional guidelines. As a result, it is unclear how the data qualifiers are applied based on the checklist results (the data qualifiers are not discussed in the Data Validation Plan). Instead, the qualifiers are applied primarily through "professional judgment". Therefore,

the Data Validation Plan does not provide prescriptive criteria that would insure that qualification of the data was consistent over the five-year period.

The RVO CQAP has a stand-alone section on the Analytical Laboratory Performance Evaluation System (ALPES) program for using PE samples for lab quality issue examination. However, the APLES program is not specifically discussed in the PMC CQAP. Therefore it is not clear how this program integrates with the other quality assessments performed by PMC at RMA. In addition, it was stated that the PE data are not stored electronically in the RMAED and it is unclear whether PE sample reports are prepared, or whether they are provided to the ARF.

Follow-up Interview Date: May 12, 2010

Location: Building 129, Rocky Mountain Arsenal

RVO Representative:
Bruce Fritz, Lab Database Manager, DPRA

Interviewer:
Steve Singer, PWT for EPA

Question: What does the RTRACK program do and can you show me an example of how it works?

Response: Per Bruce Fritz, the RTRACK program primarily checks to make sure that the EDD is formatted correctly. It primarily checks that the fields are filled out and are the right size, and checks that the values in certain fields are within the range specified by various lookup tables in the RTRACK database.

Question: Is the qualification of the data based on hold times the only analytical quality check that the RTRACK program performs?

Response; Per Bruce Fritz, yes.

Note: Bruce showed PWT how the program loaded preliminary data into the RMAED. Essentially, if he hits the upload button and nothing pops up on his screen the EDD loaded successfully.

Question: Are you ever asked to delete data from the database?

Response; Per Bruce Fritz, very rarely, and usually because PE data was loaded by mistake.

RVO Clarification: *PMC sends a "blind" performance evaluation (PE) sample to the laboratory. This sample is mixed in with all the regular samples and the laboratory does not know it is a PE sample. The PE data is actually created and loaded by the laboratory into RMAED via the RTRAC program. After the PE data is in the RMAED, the PMC notifies the database manager to remove all PE sample data.*

Question: Other than loading the lab data into the RMAED you are also responsible for making changes to the qualifier fields. How does that process work?

Response; Per Bruce Fritz, up until February 2007, Bruce would receive a word document that typically come from the Army chemist associated with the laboratory group. This letter would contain a list of Lot numbers and instructions for any qualifier changes that needed to be made. Bruce showed PWT an example of these letters. Bruce would attach a document number tag to each letter and would keep this letter in a file cabinet dedicated to these correspondences. Bruce would enter the reason code, the qualifier changes, and the reason comments from the letter into a table called QC_Letters. A program would use the information in this QC_Letters table to update both the Chem_Rec table and the Chem_Comm table in the RMAED.

Question: These letters that you received prior to February 2007. Do copies go to the ARF?

Response: Per Bruce, He doesn't believe they do. The file cabinet in his office contains all the original letters dating back 10 years. He does not know where the instructions before that time went. Note: PWT contacted Kelli Schneider at the ARF to see if these instruction letters were in the ARF. At the time of this writing no response has been received.

RVO Clarification: *Bruce checked with Kelli. She has never received any of the QC letters. For all future letters, see "Proposed Change" after the RVO response to Observation 6 near the beginning of this document.*

Question: So how does the notification process work now (post Feb. 2007)?

Response: Per Bruce, he receives emails with the instructions.

Question: Are these instructions in the same format as they were prior to Feb. 2007?

Response: Per Bruce, they are not in any consistent format.

Question: Do you print these instructions out, number them and file them like you did prior to Feb. 2007?

Response: Per Bruce, No. He believes that these recent instructions are only retained in his email inbox.

NOTE: Bruce showed PWT the comment field in the Chem_Comm table to get a feeling for what the instructions looked like. For comments prior to 2007, the comment letter number would often be included in the reason field for reference. Comments since that time only have a summary of the instruction letter but no letter number. The comments were summarized by Bruce based on the instructions sent to him but it was not clear that consistent elements from the instruction were applied.

PWT picked a comment code (1938) from the Chem_Comm Table at random and asked to see the instruction letter. The instruction letter was from Cecil Slaughter, USGS and dated 9/22/08. The instruction referred to some groundwater data for Well 36631 in Lot ULN, which had been automatically given an 'R' in the Rec_Loc_Flag field by the RTRACK program due to hold time exceedances. The instruction from Cecil indicated that Cecil had conferred with Bob Charles on whether the wells should be re-sampled and concluded that the resample was not warranted but that the rejected data be qualified as acceptable, and the 'R' replaced with an 'A'. However, there is no justification provided in the instruction for this re-qualification of the rejected data as acceptable.

Data Requests:

RVO Representative:
Kathy Weinel, PMC

Data Request Source:
Steve Singer, PWT for EPA

As a result of the interviews noted above, EPA submitted two information requests to the PMC lab group. In the first request, EPA provided a subset of data from the FYR period that had been qualified as rejected in the RMAED, to establish the process by which data can be rejected in the RMAED. EPA requested the backup documentation that resulted in this data being rejected. PMC provided a validation summary to EPA. Based on the PMC response, the following observations were made:

- *PMC provided justification for all of the rejected data in the EPA submittal except one. The missing justification involved an instruction from URS rather than from the PMC, and resulted in rejection of DIMP data for some samples in data package WFJ. Based on subsequent discussion with PMC lab support staff, it appears that instructions to the RMAED with respect to altering the data qualifiers is not required to go through the laboratory support group. In addition, the RMA Database Manager implements the instructions from the various data users but does technically evaluate the instructions. Therefore, it is unclear whether there is a centralized approval authority for making changes to the database, and what technical qualifications are required for individuals that are currently authorizing changes.*
- *For the rejected data that PMC did include in their response, the PMC provided a narrative of the validation problems that led to rejection of the data. Though the narrative appears to provide adequate justification for rejection of the data in EPA's submittal, PMC did not provide the backup documentation as was requested by EPA. Therefore, it remains unclear how the results of the validation that resulted in the qualifier changes were documented.*

EPA provided a second data set to PMC that involved tables from the RMA Operational Assessment Reports that covered FY2006, FY2007, and FY2008. EPA requested that the percent of the data that was validated from these tables be provided by PMC. This was important because the RVO had not provided data summary reports for these systems during the FYR period. The data sets were as follows:

- *North of Basin F Intercept Data Listing: FY2008 Effluent (PAASEF)*
- *North Boundary Treatment Plant Data Listing: FY2007 Treatment Plant Influent (PNININ)*
- *Northwest Boundary Treatment Plant Data Listing: FY2006 Treatment Plant Effluent (PWEFEF)*

The resulting validation percentages provided by PMC are:

- *North of Basin F Intercept Data Listing: FY2008 Effluent (PAASEF): 37.5%*

- *North Boundary Treatment Plant Data Listing: FY2007 Treatment Plant Influent (PNININ): 61.4%*
- *Northwest Boundary Treatment Plant Data Listing: FY2006 Treatment Plant Effluent (PWEFEF) 54.5 %*

The results provided by PMC for the three individual data sets indicate that the minimum requirement for 25% validation for these data sets was met.

Follow-up Document Review: Post Laboratory Water Quality Data Assessment Procedure

Location: N/A

RVO Representative: N/A

Reviewers:
Levi Todd, PWT for EPA
Steve Singer, PWT for EPA
Bill Lutz, PWT for EPA

Based on the interview results, the *Post Laboratory Water-Quality Data Assessment Procedure* (RVO SOP RVOP.014) dated 1/24/ 2007 was reviewed because it provides methodologies for qualifying data as rejected that lie outside of the PMC CQAP and PMC Environmental Data Validation plan.

The *Procedure* outlines a data assessment process by which "questionable" data are reviewed with respect to not only the quality of the data, but also with respect to the data relative to other data (statistical analysis), historical data (chronological trends), or other site characteristics (hydrogeological review). The *Procedure* relies heavily on the U.S. Environmental Protection Agency (EPA) guidance, *Data Quality Assessment: A Reviewer's Guide* (*DQA Guide*) (EPA 2006a), and *Data Quality Assessment: Statistical Methods for Practitioners* (*DQA Methods*) (EPA 2006b), which are both cited throughout the *Procedure*.

The data assessment process may be reasonable for project-specific or evaluation-specific efforts in which the data are being evaluated for a particular purpose, and for which the conclusions are applied only to that specific project. However, the *Procedure* appears to depart from typical practice by allowing the data user to qualify the analytical data in the Rocky Mountain Arsenal Environmental Database (RMAED) based on the overall data assessment process. The *Procedure* also appears to depart from the guidance, *DQA Guide*, in several significant respects.

The EPA data quality assessment process emphasizes the importance of the assessing the data in the context of project objectives. Examples of this emphasis include:

- the introduction to Data Quality Assessment contained on EPA's web page (www.epa.gov/quality/dqa) indicates that data quality assessment is used to assess the type, quantity, and quality of data in order to verify that the **planning objectives**, Quality Assurance Project Plan (QAPP) components, and sample collection procedures were satisfied and that the data are suitable for its [sic] intended purpose [emphasis added];

- the *DQA Guide* reiterates that data assessment is "The evaluation of environmental data to determine if they meet the **planning objectives** of the project, and thus are of the right type, quality, and quantity to support their intended use" [emphasis added];
- the *DQA Guide* also indicates that the first step in a data quality assessment is review of the project's objectives and sampling design;
- the *DQA Guide* indicates that if objectives have not been developed, then it is necessary to recreate some of the project's objectives prior to conducting the DQA; and
- the *DQA Guide* recommends the data quality objective (DQO) process for systematic planning.

The first step in the *Procedure* is "Review of the data set." However, the *Procedure* does not indicate that this is done with respect to the project's objectives, which should be identified as data quality objectives in the quality assurance project plan (QAPP) for the project, and whether the *Procedure* will meet the project's or task's objectives.

Also, the first step of the *Procedure* involving data review includes a plot of the data versus time, as well as review of the data package and quality assurance (QA)/quality control (QC) information. The second step in the *Procedure* is evaluation of QC sample results. The distinction between the review of QA/QC information between the first and second steps is unclear, but regardless, it appears that some level of data review is conducted before review of QA/QC information. Conversely, the *DQA Guide* describes the data life cycle in the context of a quality assurance assessment, of which the data quality assessment is a part. The *DQA Guide* indicates that data quality assessment only occurs after the data have been verified and validated, and that this verified/validated data is an input to the data quality assessment.

The *Procedure* allows for the use of statistical, chronological, or hydrogeologic criteria (i.e., criteria other than verification/validation criteria) to qualify and reject data in the RMAED, and, in addition, does not appear to have any requirements for distinguishing between data rejected as a result of verification/validation or as a result of a data quality assessment. The qualification of data in the RMAED as a result of the data assessment process appears to be inconsistent with the *DQA Guide*. Figure 0-1 in this guidance shows that an <u>input</u> into the data quality assessment is verified/validated data, and the <u>output</u> is project conclusions.

The data assessment process is not transparent with respect to the details that might result in qualification of the data, which creates the potential for subjective, rather than objective, review of the data. For example, Section 6.4.5 discusses the chronological review of water quality data, and indicates that this evaluation may be performed even if outliers were not identified by the outlier tests. It is therefore not clear what criteria are used to determine if the data are anomalous. While lack of specificity is in some sense a natural aspect of a data assessment process, when the potential end result is data qualification in the RMAED rather than limited application of the conclusions to the specific task or project, the potential pitfalls are raised to a level such that additional specificity, safeguards, or oversight are warranted for the process.

Additional issues regarding the *Procedure* that results in the end point of data qualification in the RMAED include:

- Evaluation of only "questionable" data, rather than a non-biased, objective evaluation of all data, or a data subset, and an emphasis on data in the Method Reporting Limit range, which raises further concerns with respect to the objectivity of the data assessment and qualification of the data;
- Use of results from an evaluation-specific data assessment to qualify original data, which ignores the possibility that the data may be valid from an analytical QA/QC perspective, and therefore, may potentially be useful for other evaluations or purposes;
- Qualifications are not required for the "data user" that conducts the data assessment, including any data verification/validation efforts;
- Historic data in the database prior to promulgation of the *Procedure* (January 2007) can be reassessed by the Procedure;
- The SOP does not appear to allow for oversight or participation by the Regulatory Agencies in the data assessment process; and
- There are provisions in the *Procedure* to change "R" flags, if data collected subsequent to the data previously qualified, should indicate that the previously qualified data should not have been qualified. This provision could allow data qualified by one procedure (i.e. data validation) to be overwritten with the results of this *Procedure.* It also suggests that the results of the data validation may only be temporary and subject to whatever data set is most recent or being reviewed in the future.

In conclusion, the Post-Laboratory Procedure tends to obscure the line between data evaluation for the purpose of data quality and validity and data evaluation for the purpose of data usability. In addition, it is not clear from the Procedure that data validation needs to be performed before initiating the post laboratory validation process. The Procedure should only be applied as a means of assessing data usability for the intended purpose outlined in a project SAP or QAPP. To this end, the use of the 'Z' qualifier in the Data_Qual field in the Chem_Rec table, as an indication of data usability, is acceptable. However, the use of the Procedure to qualify data as rejected (in the Rec_Loc_Flag field) should not be done if the results of the data validation process do not indicate that the data is of unacceptable quality.

References:

Environmental Protection Agency (EPA)

2006a *Data Quality Assessment: A Reviewer's Guide*

2006b *Data Quality Assessment: Statistical Methods for Practitioners.*

Program Management Contractor (PMC).

2007 *Chemical Quality Assurance Plan. Rev. 4. October.*

2006 *Environmental Data Validation Plan. January.*

Remediation Venture Office. (RVO).

2009 *Chemical Quality Assurance Plan. Rev. 4. January.*

2007 *Post Laboratory Water-Quality Data Assessment Procedure. January.*

TAB A
COMPLEX TRENCHES

Five-Year Review Site Inspection Checklist

(Working document for site inspection. Information may be completed by hand and attached to the Five-Year Review report as supporting documentation of site status. "N/A" refers to "not applicable.")

I. SITE INFORMATION	
Site name: Complex-Trenches system	**Date of inspection:** April 27, 2010
Location and Region: RMA Region VIII	**EPA ID:** C05210020769
Agency, office, or company leading the five-year review: RVO	**Weather/temperature:** clear, warm

Remedy Includes: (Check all that apply)

- ✗ Landfill cover/containment
- ✗ Access controls
- Institutional controls
- Groundwater pump and treatment
- Surface water collection and treatment
- Other _____
- Monitored natural attenuation
- ✗ Groundwater containment
- ✗ Vertical barrier walls

Attachments: Inspection team roster attached Site map attached

II. INTERVIEWS (Check all that apply)

1. **O&M site manager** Rick Beardslee _____ _____
   Name Title Date
   Interviewed (at site) at office by phone Phone no. _____
   Problems, suggestions; Report attached _____

2. **O&M staff** _____ _____ _____
   Name Title Date
   Interviewed at site at office by phone Phone no. _____
   Problems, suggestions; Report attached _____

3. **Local regulatory authorities and response agencies** (i.e., State and Tribal offices, emergency response office, police department, office of public health or environmental health, zoning office, recorder of deeds, or other city and county offices, etc.) Fill in all that apply.

Agency _____
Contact _____ _____ _____ _____
Name Title Date Phone no.
Problems; suggestions; Report attached _____

Agency _____
Contact _____ _____ _____ _____
Name Title Date Phone no.
Problems; suggestions; Report attached _____

Agency _____
Contact _____ _____ _____ _____
Name Title Date Phone no.
Problems; suggestions; Report attached _____

Agency _____
Contact _____ _____ _____ _____
Name Title Date Phone no.
Problems; suggestions; Report attached _____

4. **Other interviews** (optional) Report attached.

V. ACCESS AND INSTITUTIONAL CONTROLS Applicable N/A

A. Fencing

1. **Fencing damaged** Location shown on site map Gates secured N/A
Remarks Complex Trenches ~~on~~ System is within Integrated cover Fence - Access is

B. Other Access Restrictions

1. **Signs and other security measures** Location shown on site map N/A
Remarks Signs are obilisgns on on cover Fencing which is in good condition

C. Institutional Controls (ICs)

1. **Implementation and enforcement**

Site conditions imply ICs not properly implemented	Yes	No	N/A
Site conditions imply ICs not being fully enforced	Yes	No	N/A

Type of monitoring (*e.g.*, self-reporting, drive by) _____
Frequency _____
Responsible party/agency _____
Contact _____ _____ _____ _____
Name Title Date Phone no.

Reporting is up-to-date	Yes	No	N/A
Reports are verified by the lead agency	Yes	No	N/A
Specific requirements in deed or decision documents have been met	Yes	No	N/A
Violations have been reported	Yes	No	N/A

Other problems or suggestions: Report attached

2. **Adequacy** ICs are adequate ICs are inadequate N/A
Remarks _____

D. General

1. **Vandalism/trespassing** Location shown on site map No vandalism evident
Remarks _____

2. **Land use changes on site** N/A
Remarks In Army Maintained Area

3. **Land use changes off site** N/A
Remarks _____

VI. GENERAL SITE CONDITIONS

A. Roads Applicable N/A

1. **Roads damaged** Location shown on site map Roads adequate N/A
Remarks _____

B. Other Site Conditions

Remarks _____

IX. GROUNDWATER/SURFACE WATER REMEDIES Applicable N/A

A. Groundwater Extraction Wells, Pumps, and Pipelines (Applicable) N/A

1. **Pumps, Wellhead Plumbing, and Electrical**
   Good condition (All required wells properly operating) Needs Maintenance N/A
   Remarks one extraction well in good condition - was extended during cover construction. Electrical boxes have covers and in ok condition

2. **Extraction System Pipelines, Valves, Valve Boxes, and Other Appurtenances**
   Good condition Needs Maintenance
   Remarks _____

3. **Spare Parts and Equipment**
   (Readily available) Good condition Requires upgrade Needs to be provided
   Remarks _____

C. Treatment System Applicable (N/A) See Basin A Neck inspection

1. **Treatment Train** (Check components that apply)
   Metals removal Oil/water separation Bioremediation
   Air stripping Carbon adsorbers
   Filters _____
   Additive (*e.g.*, chelation agent, flocculent) _____
   Others _____
   Good condition Needs Maintenance
   Sampling ports properly marked and functional
   Sampling/maintenance log displayed and up to date
   Equipment properly identified
   Quantity of groundwater treated annually _____
   Quantity of surface water treated annually _____
   Remarks _____

2. **Electrical Enclosures and Panels** (properly rated and functional)
N/A Good condition Needs Maintenance
Remarks See Basin A Neck inspection

3. **Tanks, Vaults, Storage Vessels**
N/A Good condition Proper secondary containment Needs Maintenance
Remarks

4. **Discharge Structure and Appurtenances**
N/A Good condition Needs Maintenance
Remarks

5. **Treatment Building(s)**
N/A Good condition (esp. roof and doorways) Needs repair
Chemicals and equipment properly stored
Remarks

6. **Monitoring Wells** (pump and treatment remedy)
Properly secured/locked Functioning Routinely sampled Good condition
All required wells located Needs Maintenance N/A
Remarks Inspected wells 36305 - Extraction well elevated Complex Trenches - well in good condition, well marked appropriately - well was extended during cover construction and no signs of settling observed
well 36219 is a water level well on inside of slurry wall. well is in good condition and marked adequately

XI. OVERALL OBSERVATIONS

A. Implementation of the Remedy

Describe issues and observations relating to whether the remedy is effective and functioning as designed. Begin with a brief statement of what the remedy is to accomplish (i.e., to contain contaminant plume, minimize infiltration and gas emission, etc.).

Inspected Complex Trench monitoring and dewatering wells. The wells were observed to be in acceptable condition

B. Adequacy of O&M

Describe issues and observations related to the implementation and scope of O&M procedures. In particular, discuss their relationship to the current and long-term protectiveness of the remedy.

CDPHE

OSWER No. 9355.7-03B-P

Five-Year Review Site Inspection Checklist

(Working document for site inspection. Information may be completed by hand and attached to the Five-Year Review report as supporting documentation of site status. "N/A" refers to "not applicable.")

Army Complex Trench

I. SITE INFORMATION	
Site name: On-Post Groundwater Monitoring Wells	**Date of inspection:** April 28, 2010
Location and Region: RMA Region VIII	**EPA ID:** C05210020769
Agency, office, or company leading the five-year review: RVO	**Weather/temperature:**

Remedy Includes: (Check all that apply)

Landfill cover/containment
X Access controls
Institutional controls
Groundwater pump and treatment
Surface water collection and treatment
Monitored natural attenuation
Groundwater containment
Vertical barrier walls
X Other___On-post groundwater monitoring wells, including wells associated with ELF, Basin F, North Plants, Complex Trenches, Shell Trenches, Groundwater Mass Removal and Lime Basins project areas, and the Bison Pilot Area

Attachments: Inspection team roster attached Site map attached

II. INTERVIEWS (Check all that apply)

1. **O&M site manager** _____ _____ _____
   Name Title Date
   Interviewed at site at office by phone Phone no. _____
   Problems, suggestions; Report attached _____

2. **O&M staff** _____ _____ _____
   Name Title Date
   Interviewed at site at office by phone Phone no. _____
   Problems, suggestions; Report attached _____

3. **Local regulatory authorities and response agencies** (i.e., State and Tribal offices, emergency response office, police department, office of public health or environmental health, zoning office, recorder of deeds, or other city and county offices, etc.) Fill in all that apply.

Agency CDPHE
Contact Ken Vagler (Name) Engineer (Title) 4/27/10 (Date) 3 692-3383 (Phone no.)
Problems; suggestions; Report attached All OK

Agency _____
Contact _____ (Name) _____ (Title) _____ (Date) _____ (Phone no.)
Problems; suggestions; Report attached _____

Agency _____
Contact _____ (Name) _____ (Title) _____ (Date) _____ (Phone no.)
Problems; suggestions; Report attached _____

Agency _____
Contact _____ (Name) _____ (Title) _____ (Date) _____ (Phone no.)
Problems; suggestions; Report attached _____

4. **Other interviews** (optional) Report attached.

V. ACCESS AND INSTITUTIONAL CONTROLS Applicable N/A

A. Fencing

1. **Fencing damaged** Location shown on site map Gates secured N/A
Remarks _____

B. Other Access Restrictions

1. **Signs and other security measures** Location shown on site map N/A
Remarks _____

C. Institutional Controls (ICs)

1. **Implementation and enforcement**

Site conditions imply ICs not properly implemented	Yes	No	N/A
Site conditions imply ICs not being fully enforced	Yes	No	N/A

Type of monitoring (*e.g.*, self-reporting, drive by) _____
Frequency _____
Responsible party/agency _____
Contact _____ _____ _____ _____
Name Title Date Phone no.

Reporting is up-to-date	Yes	No	N/A
Reports are verified by the lead agency	Yes	No	N/A
Specific requirements in deed or decision documents have been met	Yes	No	N/A
Violations have been reported	Yes	No	N/A

Other problems or suggestions: Report attached
_____
_____
_____
_____

2. **Adequacy** ICs are adequate ICs are inadequate N/A
Remarks_____
_____
_____

D. General

1. **Vandalism/trespassing** Location shown on site map No vandalism evident
Remarks_____
_____

2. **Land use changes on site** N/A
Remarks_____
_____

3. **Land use changes off site** N/A
Remarks_____
_____

VI. GENERAL SITE CONDITIONS

A. Roads Applicable N/A

1. **Roads damaged** Location shown on site map Roads adequate N/A
Remarks_____
_____

B. Other Site Conditions

Remarks _____

_____

_____

_____

_____

_____

IX. GROUNDWATER/SURFACE WATER REMEDIES Applicable N/A

A. Groundwater Extraction Wells, Pumps, and Pipelines Applicable N/A

1. **Pumps, Wellhead Plumbing, and Electrical**
   Good condition All required wells properly operating Needs Maintenance N/A
   Remarks_____

2. **Extraction System Pipelines, Valves, Valve Boxes, and Other Appurtenances**
   Good condition Needs Maintenance
   Remarks_____

3. **Spare Parts and Equipment**
   Readily available Good condition Requires upgrade Needs to be provided
   Remarks_____

C. Treatment System Applicable N/A

1. **Treatment Train** (Check components that apply)
   Metals removal Oil/water separation Bioremediation
   Air stripping Carbon adsorbers
   Filters_____
   Additive (*e.g.*, chelation agent, flocculent)_____
   Others_____
   Good condition Needs Maintenance
   Sampling ports properly marked and functional
   Sampling/maintenance log displayed and up to date
   Equipment properly identified
   Quantity of groundwater treated annually_____
   Quantity of surface water treated annually_____
   Remarks_____

2.	**Electrical Enclosures and Panels** (properly rated and functional) N/A Good condition Needs Maintenance Remarks_____
3.	**Tanks, Vaults, Storage Vessels** N/A Good condition Proper secondary containment Needs Maintenance Remarks_____
4.	**Discharge Structure and Appurtenances** N/A Good condition Needs Maintenance Remarks_____
5.	**Treatment Building(s)** N/A Good condition (esp. roof and doorways) Needs repair Chemicals and equipment properly stored Remarks_____
6.	**Monitoring Wells** (pump and treatment remedy) Properly secured/locked Functioning Routinely sampled Good condition All required wells located Needs Maintenance N/A Remarks_____

XI. OVERALL OBSERVATIONS

A. Implementation of the Remedy

Describe issues and observations relating to whether the remedy is effective and functioning as designed. Begin with a brief statement of what the remedy is to accomplish (i.e., to contain contaminant plume, minimize infiltration and gas emission, etc.).

B. Adequacy of O&M

Describe issues and observations related to the implementation and scope of O&M procedures. In particular, discuss their relationship to the current and long-term protectiveness of the remedy.

Five-Year Review Site Inspection Checklist

(Working document for site inspection. Information may be completed by hand and attached to the Five-Year Review report as supporting documentation of site status. "N/A" refers to "not applicable.")

CAT

I. SITE INFORMATION	
Site name: On-Post Groundwater Monitoring Wells	**Date of inspection:** April 28, 2010
Location and Region: RMA Region VIII	**EPA ID:** C05210020769
Agency, office, or company leading the five-year review: RVO	**Weather/temperature:**

Remedy Includes: (Check all that apply)

Landfill cover/containment
X Access controls
Institutional controls
Groundwater pump and treatment
Surface water collection and treatment
Monitored natural attenuation
Groundwater containment
Vertical barrier walls
X Other___On-post groundwater monitoring wells, including wells associated with ELF, Basin F, North Plants, Complex Trenches, Shell Trenches, Groundwater Mass Removal and Lime Basins project areas, and the Bison Pilot Area

Attachments: Inspection team roster attached Site map attached

II. INTERVIEWS (Check all that apply)

1. **O&M site manager** _____ _____ _____
   Name Title Date
   Interviewed at site at office by phone Phone no. _____
   Problems, suggestions; Report attached _____

2. **O&M staff** _____ _____ _____
   Name Title Date
   Interviewed at site at office by phone Phone no. _____
   Problems, suggestions; Report attached _____

3. **Local regulatory authorities and response agencies** (i.e., State and Tribal offices, emergency response office, police department, office of public health or environmental health, zoning office, recorder of deeds, or other city and county offices, etc.) Fill in all that apply.

Agency TCHD
Contact Vincent Stewart | EHS | 4/27/10 | 720-322-1525
Name | Title | Date | Phone no.
Problems; suggestions; Report attached _____

Agency _____
Contact _____ | _____ | _____ | _____
Name | Title | Date | Phone no.
Problems; suggestions; Report attached _____

Agency _____
Contact _____ | _____ | _____ | _____
Name | Title | Date | Phone no.
Problems; suggestions; Report attached _____

Agency _____
Contact _____ | _____ | _____ | _____
Name | Title | Date | Phone no.
Problems; suggestions; Report attached _____

4. **Other interviews** (optional) Report attached.

V. ACCESS AND INSTITUTIONAL CONTROLS Applicable N/A

A. Fencing

1. **Fencing damaged** Location shown on site map Gates secured N/A
Remarks _____

B. Other Access Restrictions

1. **Signs and other security measures** Location shown on site map N/A
Remarks _____

C. Institutional Controls (ICs)

1. **Implementation and enforcement**

Site conditions imply ICs not properly implemented	Yes	No	N/A
Site conditions imply ICs not being fully enforced	Yes	No	N/A

Type of monitoring (*e.g.*, self-reporting, drive by) _____
Frequency _____
Responsible party/agency _____
Contact _____ _____ _____ _____
Name Title Date Phone no.

Reporting is up-to-date	Yes	No	N/A
Reports are verified by the lead agency	Yes	No	N/A
Specific requirements in deed or decision documents have been met	Yes	No	N/A
Violations have been reported	Yes	No	N/A

Other problems or suggestions: Report attached

_____
_____
_____
_____

2. **Adequacy** ICs are adequate ICs are inadequate N/A
Remarks_____
_____
_____

D. General

1. **Vandalism/trespassing** Location shown on site map No vandalism evident
Remarks_____
_____

2. **Land use changes on site** N/A
Remarks_____
_____

3. **Land use changes off site** N/A
Remarks_____
_____

VI. GENERAL SITE CONDITIONS

A. Roads Applicable N/A

1. **Roads damaged** Location shown on site map Roads adequate N/A
Remarks_____
_____

B. Other Site Conditions

Remarks _____

IX. GROUNDWATER/SURFACE WATER REMEDIES (Applicable) N/A

A. Groundwater Extraction Wells, Pumps, and Pipelines (Applicable) N/A

1. **Pumps, Wellhead Plumbing, and Electrical**
   (Good condition) All required wells properly operating Needs Maintenance N/A
   Remarks 36305 - Extraction well near road, power box is ≈100 yards W of well

2. **Extraction System Pipelines, Valves, Valve Boxes, and Other Appurtenances**
   (Good condition) Needs Maintenance
   Remarks _____

3. **Spare Parts and Equipment**
   Readily available Good condition Requires upgrade Needs to be provided
   Remarks _____

C. Treatment System Applicable (N/A)

1. **Treatment Train** (Check components that apply)
   Metals removal Oil/water separation Bioremediation
   Air stripping Carbon adsorbers
   Filters _____
   Additive (*e.g.*, chelation agent, flocculent) _____
   Others _____
   Good condition Needs Maintenance
   Sampling ports properly marked and functional
   Sampling/maintenance log displayed and up to date
   Equipment properly identified
   Quantity of groundwater treated annually _____
   Quantity of surface water treated annually _____
   Remarks _____

2.	**Electrical Enclosures and Panels** (properly rated and functional) N/A Good condition Needs Maintenance Remarks_____
3.	**Tanks, Vaults, Storage Vessels** N/A Good condition Proper secondary containment Needs Maintenance Remarks_____
4.	**Discharge Structure and Appurtenances** N/A Good condition Needs Maintenance Remarks_____
5.	**Treatment Building(s)** N/A Good condition (esp. roof and doorways) Needs repair Chemicals and equipment properly stored Remarks_____
6.	**Monitoring Wells** (pump and treatment remedy) Properly secured/locked Functioning Routinely sampled Good condition All required wells located Needs Maintenance N/A Remarks 36209 - One of paired wells inside trench

XI. OVERALL OBSERVATIONS

A. Implementation of the Remedy

Describe issues and observations relating to whether the remedy is effective and functioning as designed. Begin with a brief statement of what the remedy is to accomplish (i.e., to contain contaminant plume, minimize infiltration and gas emission, etc.).

B. Adequacy of O&M

Describe issues and observations related to the implementation and scope of O&M procedures. In particular, discuss their relationship to the current and long-term protectiveness of the remedy.

TAB B
SHELL TRENCHES

Five-Year Review Site Inspection Checklist

(Working document for site inspection. Information may be completed by hand and attached to the Five-Year Review report as supporting documentation of site status. "N/A" refers to "not applicable.")

I. SITE INFORMATION	
Site name: Shell Trenches Slurry Wall	**Date of inspection:** April 27, 2010
Location and Region: RMA Region VIII	**EPA ID:** C05210020769
Agency, office, or company leading the five-year review: RVO	**Weather/temperature:** warm, clear

Remedy Includes: (Check all that apply)

- Landfill cover/containment
- ✗ Access controls
- ✗ Institutional controls
- Groundwater pump and treatment
- Surface water collection and treatment
- Other _____
- Monitored natural attenuation
- ✗ Groundwater containment
- ✗ Vertical barrier walls

Attachments: Inspection team roster attached Site map attached

II. INTERVIEWS (Check all that apply)

1. **O&M site manager** Rick Beardsley _____ _____
   Name Title Date
   Interviewed (at site) at office by phone Phone no. _____
   Problems, suggestions; Report attached _____

2. **O&M staff** _____ _____ _____
   Name Title Date
   Interviewed at site at office by phone Phone no. _____
   Problems, suggestions; Report attached _____

3. **Local regulatory authorities and response agencies** (i.e., State and Tribal offices, emergency response office, police department, office of public health or environmental health, zoning office, recorder of deeds, or other city and county offices, etc.) Fill in all that apply.

Agency Environmental Protection Agency
Contact Ron Bertram (Name) RPM (Title) 4/27/10 (Date) 312-6061 (Phone no.)
Problems; suggestions; Report attached

Agency
Contact (Name) (Title) (Date) (Phone no.)
Problems; suggestions; Report attached

Agency
Contact (Name) (Title) (Date) (Phone no.)
Problems; suggestions; Report attached

Agency
Contact (Name) (Title) (Date) (Phone no.)
Problems; suggestions; Report attached

4. **Other interviews** (optional) Report attached.

V. ACCESS AND INSTITUTIONAL CONTROLS Applicable N/A

A. Fencing

1. **Fencing damaged** Location shown on site map Gates secured N/A
Remarks Shell Trenches Slurry wall is within Integrated Cover Fence

B. Other Access Restrictions

1. **Signs and other security measures** Location shown on site map N/A
Remarks Warning signs and obilisques are

C. Institutional Controls (ICs)

1. **Implementation and enforcement**

Site conditions imply ICs not properly implemented	Yes	No	N/A
Site conditions imply ICs not being fully enforced	Yes	No	N/A

Type of monitoring (*e.g.*, self-reporting, drive by) _____
Frequency _____
Responsible party/agency _____
Contact _____ _____ _____ _____
Name Title Date Phone no.

Reporting is up-to-date	Yes	No	N/A
Reports are verified by the lead agency	Yes	No	N/A
Specific requirements in deed or decision documents have been met	Yes	No	N/A
Violations have been reported	Yes	No	N/A

Other problems or suggestions: Report attached

2. **Adequacy** ICs are adequate ICs are inadequate N/A
Remarks _____

D. General

1. **Vandalism/trespassing** Location shown on site map (No vandalism evident)
Remarks _____

2. **Land use changes on site** (N/A)
Remarks In Army maintained area

3. **Land use changes off site** (N/A)
Remarks _____

VI. GENERAL SITE CONDITIONS

A. Roads Applicable N/A

1. **Roads damaged** Location shown on site map (Roads adequate) N/A
Remarks _____

B. Other Site Conditions

Remarks _____

_____

_____

_____

_____

_____

IX. GROUNDWATER/SURFACE WATER REMEDIES Applicable N/A

A. Groundwater Extraction Wells, Pumps, and Pipelines Applicable N/A

1. **Pumps, Wellhead Plumbing, and Electrical**
   Good condition All required wells properly operating Needs Maintenance N/A
   Remarks_____

2. **Extraction System Pipelines, Valves, Valve Boxes, and Other Appurtenances**
   Good condition Needs Maintenance
   Remarks_____

3. **Spare Parts and Equipment**
   Readily available Good condition Requires upgrade Needs to be provided
   Remarks_____

C. Treatment System Applicable N/A

1. **Treatment Train** (Check components that apply)
   Metals removal Oil/water separation Bioremediation
   Air stripping Carbon adsorbers
   Filters_____
   Additive (*e.g.*, chelation agent, flocculent)_____
   Others_____
   Good condition Needs Maintenance
   Sampling ports properly marked and functional
   Sampling/maintenance log displayed and up to date
   Equipment properly identified
   Quantity of groundwater treated annually_____
   Quantity of surface water treated annually_____
   Remarks_____

2. **Electrical Enclosures and Panels** (properly rated and functional)
(N/A) Good condition Needs Maintenance
Remarks

3. **Tanks, Vaults, Storage Vessels**
(N/A) Good condition Proper secondary containment Needs Maintenance
Remarks

4. **Discharge Structure and Appurtenances**
(N/A) Good condition Needs Maintenance
Remarks

5. **Treatment Building(s)**
(N/A) Good condition (esp. roof and doorways) Needs repair
Chemicals and equipment properly stored
Remarks

6. **Monitoring Wells** (pump and treatment remedy)
Properly secured/locked Functioning Routinely sampled Good condition
(All required wells located) Needs Maintenance N/A
Remarks Inspected well 36226 and 36535, which are water level monitoring wells. Well 36226 monitors the Southwest Gradient and outside the slurry wall, and well 36535 monitors inside slurry wall on the southeast corner.

XI. OVERALL OBSERVATIONS

A. Implementation of the Remedy

Describe issues and observations relating to whether the remedy is effective and functioning as designed. Begin with a brief statement of what the remedy is to accomplish (i.e., to contain contaminant plume, minimize infiltration and gas emission, etc.).

Inspected the monitoring wells at Shell trenches the wells were found to be in acceptable condition

B. Adequacy of O&M

Describe issues and observations related to the implementation and scope of O&M procedures. In particular, discuss their relationship to the current and long-term protectiveness of the remedy.

CDPHE

Five-Year Review Site Inspection Checklist

(Working document for site inspection. Information may be completed by hand and attached to the Five-Year Review report as supporting documentation of site status. "N/A" refers to "not applicable.")

I. SITE INFORMATION	
Site name: On-Post Groundwater Monitoring Wells	**Date of inspection:** April 28, 2010
Location and Region: RMA Region VIII	**EPA ID:** C05210020769
Agency, office, or company leading the five-year review: RVO	**Weather/temperature:**

Remedy Includes: (Check all that apply)

Landfill cover/containment
X Access controls
Institutional controls
Groundwater pump and treatment
Surface water collection and treatment
Monitored natural attenuation
Groundwater containment
Vertical barrier walls
X Other___On-post groundwater monitoring wells, including wells associated with ELF, Basin F, North Plants, Complex Trenches, Shell Trenches, Groundwater Mass Removal and Lime Basins project areas, and the Bison Pilot Area

Attachments: Inspection team roster attached Site map attached

II. INTERVIEWS (Check all that apply)

1. **O&M site manager** _____ _____ _____
   Name Title Date
   Interviewed at site at office by phone Phone no. _____
   Problems, suggestions; Report attached _____

2. **O&M staff** _____ _____ _____
   Name Title Date
   Interviewed at site at office by phone Phone no. _____
   Problems, suggestions; Report attached _____

3. **Local regulatory authorities and response agencies** (i.e., State and Tribal offices, emergency response office, police department, office of public health or environmental health, zoning office, recorder of deeds, or other city and county offices, etc.) Fill in all that apply.

Agency CDPHE
Contact Ken Vogler — Engineer — 4/27/10 — 3 692-3388
Name — Title — Date — Phone no.
Problems; suggestions; Report attached All OK

Agency _____
Contact _____ — _____ — _____ — _____
Name — Title — Date — Phone no.
Problems; suggestions; Report attached _____

Agency _____
Contact _____ — _____ — _____ — _____
Name — Title — Date — Phone no.
Problems; suggestions; Report attached _____

Agency _____
Contact _____ — _____ — _____ — _____
Name — Title — Date — Phone no.
Problems; suggestions; Report attached _____

4. **Other interviews** (optional) Report attached.

V. ACCESS AND INSTITUTIONAL CONTROLS Applicable N/A

A. Fencing

1. **Fencing damaged** Location shown on site map Gates secured N/A
Remarks _____

B. Other Access Restrictions

1. **Signs and other security measures** Location shown on site map N/A
Remarks _____

C. Institutional Controls (ICs)

1. **Implementation and enforcement**

Site conditions imply ICs not properly implemented	Yes	No	N/A
Site conditions imply ICs not being fully enforced	Yes	No	N/A

Type of monitoring (*e.g.*, self-reporting, drive by) _____
Frequency _____
Responsible party/agency _____
Contact _____ _____ _____ _____
Name Title Date Phone no.

Reporting is up-to-date	Yes	No	N/A
Reports are verified by the lead agency	Yes	No	N/A
Specific requirements in deed or decision documents have been met	Yes	No	N/A
Violations have been reported	Yes	No	N/A

Other problems or suggestions: Report attached

_____
_____
_____
_____

2. **Adequacy** ICs are adequate ICs are inadequate N/A
Remarks_____
_____
_____

D. General

1. **Vandalism/trespassing** Location shown on site map No vandalism evident
Remarks_____
_____

2. **Land use changes on site** N/A
Remarks_____
_____

3. **Land use changes off site** N/A
Remarks_____
_____

VI. GENERAL SITE CONDITIONS

A. Roads Applicable N/A

1. **Roads damaged** Location shown on site map Roads adequate N/A
Remarks_____
_____

B. Other Site Conditions

Remarks _____

_____

_____

_____

_____

_____

IX. GROUNDWATER/SURFACE WATER REMEDIES Applicable N/A

A. Groundwater Extraction Wells, Pumps, and Pipelines Applicable N/A

1. **Pumps, Wellhead Plumbing, and Electrical**
   Good condition All required wells properly operating Needs Maintenance N/A
   Remarks_____

2. **Extraction System Pipelines, Valves, Valve Boxes, and Other Appurtenances**
   Good condition Needs Maintenance
   Remarks_____

3. **Spare Parts and Equipment**
   Readily available Good condition Requires upgrade Needs to be provided
   Remarks_____

C. Treatment System Applicable N/A

1. **Treatment Train** (Check components that apply)
   Metals removal Oil/water separation Bioremediation
   Air stripping Carbon adsorbers
   Filters_____
   Additive (*e.g.*, chelation agent, flocculent)_____
   Others_____
   Good condition Needs Maintenance
   Sampling ports properly marked and functional
   Sampling/maintenance log displayed and up to date
   Equipment properly identified
   Quantity of groundwater treated annually_____
   Quantity of surface water treated annually_____
   Remarks_____

2.	**Electrical Enclosures and Panels** (properly rated and functional) N/A Good condition Needs Maintenance Remarks_____
3.	**Tanks, Vaults, Storage Vessels** N/A Good condition Proper secondary containment Needs Maintenance Remarks_____
4.	**Discharge Structure and Appurtenances** N/A Good condition Needs Maintenance Remarks_____
5.	**Treatment Building(s)** N/A Good condition (esp. roof and doorways) Needs repair Chemicals and equipment properly stored Remarks_____
6.	**Monitoring Wells** (pump and treatment remedy) Properly secured/locked Functioning Routinely sampled Good condition All required wells located Needs Maintenance N/A Remarks_____

XI. OVERALL OBSERVATIONS

A. Implementation of the Remedy

Describe issues and observations relating to whether the remedy is effective and functioning as designed. Begin with a brief statement of what the remedy is to accomplish (i.e., to contain contaminant plume, minimize infiltration and gas emission, etc.).

B. Adequacy of O&M

Describe issues and observations related to the implementation and scope of O&M procedures. In particular, discuss their relationship to the current and long-term protectiveness of the remedy.

Five-Year Review Site Inspection Checklist

(Working document for site inspection. Information may be completed by hand and attached to the Five-Year Review report as supporting documentation of site status. "N/A" refers to "not applicable.")

I. SITE INFORMATION	
Site name: On-Post Groundwater Monitoring Wells	**Date of inspection:** April 28, 2010
Location and Region: RMA Region VIII	**EPA ID:** C05210020769
Agency, office, or company leading the five-year review: RVO	**Weather/temperature:**

Remedy Includes: (Check all that apply)

Landfill cover/containment
X Access controls
Institutional controls
Groundwater pump and treatment
Surface water collection and treatment
Monitored natural attenuation
Groundwater containment
Vertical barrier walls
X Other___On-post groundwater monitoring wells, including wells associated with ELF, Basin F, North Plants, Complex Trenches, Shell Trenches, Groundwater Mass Removal and Lime Basins project areas, and the Bison Pilot Area

Attachments: Inspection team roster attached Site map attached

II. INTERVIEWS (Check all that apply)

1. **O&M site manager** _____ _____ _____
   Name Title Date
   Interviewed at site at office by phone Phone no. _____
   Problems, suggestions; Report attached _____

2. **O&M staff** _____ _____ _____
   Name Title Date
   Interviewed at site at office by phone Phone no. _____
   Problems, suggestions; Report attached _____

3. **Local regulatory authorities and response agencies** (i.e., State and Tribal offices, emergency response office, police department, office of public health or environmental health, zoning office, recorder of deeds, or other city and county offices, etc.) Fill in all that apply.

Agency TCHD
Contact Vincent Stewart | EHS | 4/27/10 | 720-322-1525
Name | Title | Date | Phone no.
Problems; suggestions; Report attached

Agency
Contact
Name | Title | Date | Phone no.
Problems; suggestions; Report attached

Agency
Contact
Name | Title | Date | Phone no.
Problems; suggestions; Report attached

Agency
Contact
Name | Title | Date | Phone no.
Problems; suggestions; Report attached

4. **Other interviews** (optional) Report attached.

V. ACCESS AND INSTITUTIONAL CONTROLS Applicable N/A

A. Fencing

1. **Fencing damaged** Location shown on site map Gates secured N/A
Remarks

B. Other Access Restrictions

1. **Signs and other security measures** Location shown on site map N/A
Remarks

C. Institutional Controls (ICs)

1. **Implementation and enforcement**

Site conditions imply ICs not properly implemented	Yes	No	N/A
Site conditions imply ICs not being fully enforced	Yes	No	N/A

Type of monitoring (*e.g.*, self-reporting, drive by) _____
Frequency _____
Responsible party/agency _____
Contact _____ _____ _____ _____
Name Title Date Phone no.

Reporting is up-to-date	Yes	No	N/A
Reports are verified by the lead agency	Yes	No	N/A
Specific requirements in deed or decision documents have been met	Yes	No	N/A
Violations have been reported	Yes	No	N/A

Other problems or suggestions: Report attached

_____
_____
_____
_____

2. **Adequacy** ICs are adequate ICs are inadequate N/A
Remarks_____
_____
_____

D. General

1. **Vandalism/trespassing** Location shown on site map No vandalism evident
Remarks_____
_____

2. **Land use changes on site** N/A
Remarks_____
_____

3. **Land use changes off site** N/A
Remarks_____
_____

VI. GENERAL SITE CONDITIONS

A. Roads Applicable N/A

1. **Roads damaged** Location shown on site map Roads adequate N/A
Remarks_____
_____

B. Other Site Conditions

Remarks _____

_____

_____

_____

_____

_____

IX. GROUNDWATER/SURFACE WATER REMEDIES Applicable N/A

A. Groundwater Extraction Wells, Pumps, and Pipelines Applicable N/A

1. **Pumps, Wellhead Plumbing, and Electrical**
   Good condition All required wells properly operating Needs Maintenance N/A
   Remarks_____

2. **Extraction System Pipelines, Valves, Valve Boxes, and Other Appurtenances**
   Good condition Needs Maintenance
   Remarks_____

3. **Spare Parts and Equipment**
   Readily available Good condition Requires upgrade Needs to be provided
   Remarks_____

C. Treatment System Applicable N/A

1. **Treatment Train** (Check components that apply)
   Metals removal Oil/water separation Bioremediation
   Air stripping Carbon adsorbers
   Filters_____
   Additive (*e.g.*, chelation agent, flocculent)_____
   Others_____
   Good condition Needs Maintenance
   Sampling ports properly marked and functional
   Sampling/maintenance log displayed and up to date
   Equipment properly identified
   Quantity of groundwater treated annually_____
   Quantity of surface water treated annually_____
   Remarks_____

2. **Electrical Enclosures and Panels** (properly rated and functional)
   N/A Good condition Needs Maintenance
   Remarks_____

3. **Tanks, Vaults, Storage Vessels**
   N/A Good condition Proper secondary containment Needs Maintenance
   Remarks_____

4. **Discharge Structure and Appurtenances**
   N/A Good condition Needs Maintenance
   Remarks_____

5. **Treatment Building(s)**
   N/A Good condition (esp. roof and doorways) Needs repair
   Chemicals and equipment properly stored
   Remarks_____

6. **Monitoring Wells** (pump and treatment remedy)
   Properly secured/locked Functioning Routinely sampled Good condition
   All required wells located Needs Maintenance N/A
   Remarks 36226, 36535
   outside slurry wall inside slurry wall

XI. OVERALL OBSERVATIONS

A. Implementation of the Remedy

Describe issues and observations relating to whether the remedy is effective and functioning as designed. Begin with a brief statement of what the remedy is to accomplish (i.e., to contain contaminant plume, minimize infiltration and gas emission, etc.).

B. Adequacy of O&M

Describe issues and observations related to the implementation and scope of O&M procedures. In particular, discuss their relationship to the current and long-term protectiveness of the remedy.

TAB C

ELF AND HWL

Five-Year Review Site Inspection Checklist

(Working document for site inspection. Information may be completed by hand and attached to the Five-Year Review report as supporting documentation of site status. "N/A" refers to "not applicable.")

I. SITE INFORMATION	
Site name: ELF & HWL Monitoring	**Date of inspection:** April 28, 2010
Location and Region: RMA Region VIII	**EPA ID:** C05210020769
Agency, office, or company leading the five-year review: RVO	**Weather/temperature:** Clear, windy

Remedy Includes: (Check all that apply)

- X Landfill cover/containment
- X Access controls
- Institutional controls
- Groundwater pump and treatment
- X Surface water collection and treatment
- Other _____
- Monitored natural attenuation
- Groundwater containment
- Vertical barrier walls

Attachments: Inspection team roster attached Site map attached

II. INTERVIEWS (Check all that apply)

1. **O&M site manager** Rick Beardslee (Name) _____ (Title) 4/28/10 (Date)
   Interviewed (at site) at office by phone Phone no. _____
   Problems, suggestions; Report attached _____

2. **O&M staff** _____ (Name) _____ (Title) _____ (Date)
   Interviewed at site at office by phone Phone no. _____
   Problems, suggestions; Report attached _____

3. **Local regulatory authorities and response agencies** (i.e., State and Tribal offices, emergency response office, police department, office of public health or environmental health, zoning office, recorder of deeds, or other city and county offices, etc.) Fill in all that apply.

Agency Environmental Protection Agency
Contact Ron Bertram RPM 4/28/10 312-6061
Name Title Date Phone no.
Problems; suggestions; Report attached

Agency
Contact
Name Title Date Phone no.
Problems; suggestions; Report attached

Agency
Contact
Name Title Date Phone no.
Problems; suggestions; Report attached

Agency
Contact
Name Title Date Phone no.
Problems; suggestions; Report attached

4. **Other interviews** (optional) Report attached.

V. ACCESS AND INSTITUTIONAL CONTROLS Applicable N/A

A. Fencing

1. **Fencing damaged** Location shown on site map ~~Gates secured~~ N/A
Remarks

B. Other Access Restrictions

1. **Signs and other security measures** Location shown on site map N/A
Remarks

C. Institutional Controls (ICs)

1. **Implementation and enforcement**

Site conditions imply ICs not properly implemented	Yes	No	N/A
Site conditions imply ICs not being fully enforced	Yes	No	N/A

Type of monitoring (*e.g.*, self-reporting, drive by) _____
Frequency _____
Responsible party/agency _____
Contact _____ _____ _____ _____
Name Title Date Phone no.

Reporting is up-to-date	Yes	No	N/A
Reports are verified by the lead agency	Yes	No	N/A
Specific requirements in deed or decision documents have been met	Yes	No	N/A
Violations have been reported	Yes	No	N/A

Other problems or suggestions: Report attached

2. **Adequacy** ICs are adequate ICs are inadequate N/A
Remarks _____

D. General

1. **Vandalism/trespassing** Location shown on site map (No vandalism evident)
Remarks _____

2. **Land use changes on site** (N/A)
Remarks In Army Maintained Area

3. **Land use changes off site** (N/A)
Remarks _____

VI. GENERAL SITE CONDITIONS

A. Roads Applicable N/A

1. **Roads damaged** Location shown on site map (Roads adequate) N/A
Remarks _____

B. Other Site Conditions

Remarks _____

IX. GROUNDWATER/SURFACE WATER REMEDIES (Applicable) N/A

A. Groundwater Extraction Wells, Pumps, and Pipelines Applicable N/A

1. **Pumps, Wellhead Plumbing, and Electrical**
   Good condition All required wells properly operating Needs Maintenance (N/A)
   Remarks _____

2. **Extraction System Pipelines, Valves, Valve Boxes, and Other Appurtenances**
   Good condition Needs Maintenance
   Remarks N/A

3. **Spare Parts and Equipment**
   ~~Readily available~~ Good condition Requires upgrade Needs to be provided
   Remarks _____

C. Treatment System Applicable (N/A)

1. **Treatment Train** (Check components that apply)
   Metals removal Oil/water separation Bioremediation
   Air stripping Carbon adsorbers
   Filters _____
   Additive (*e.g.*, chelation agent, flocculent) _____
   Others _____
   Good condition Needs Maintenance
   Sampling ports properly marked and functional
   Sampling/maintenance log displayed and up to date
   Equipment properly identified
   Quantity of groundwater treated annually _____
   Quantity of surface water treated annually _____
   Remarks _____

2. **Electrical Enclosures and Panels** (properly rated and functional)
N/A Good condition Needs Maintenance
Remarks

3. **Tanks, Vaults, Storage Vessels**
N/A Good condition Proper secondary containment Needs Maintenance
Remarks

4. **Discharge Structure and Appurtenances**
N/A Good condition Needs Maintenance
Remarks

5. **Treatment Building(s)**
N/A Good condition (esp. roof and doorways) Needs repair
Chemicals and equipment properly stored
Remarks

6. **Monitoring Wells** (pump and treatment remedy)
Properly secured/locked Functioning Routinely sampled Good condition
All required wells located Needs Maintenance N/A
Remarks Inspected Monitoring wells 26099 and 25092 which are Monitory well for the ELF. Both wells were in acceptable condition with Pads, protective casing, cap and well cover in place. Well ID tags intact.

Inspected HWC Monitoring wells 25203 and 25102. Both wells were in acceptable condition with cap/cover, casing and Pads intact. Well ID is on inside of cap at well 25203.

XI. OVERALL OBSERVATIONS

A. Implementation of the Remedy

Describe issues and observations relating to whether the remedy is effective and functioning as designed. Begin with a brief statement of what the remedy is to accomplish (i.e., to contain contaminant plume, minimize infiltration and gas emission, etc.).

Inspection consisted of inspecting selected monitoring wells for the ELF and HCL the well condition was acceptable.

B. Adequacy of O&M

Describe issues and observations related to the implementation and scope of O&M procedures. In particular, discuss their relationship to the current and long-term protectiveness of the remedy.

TriCounty Health

Five-Year Review Site Inspection Checklist

(Working document for site inspection. Information may be completed by hand and attached to the Five-Year Review report as supporting documentation of site status. "N/A" refers to "not applicable.")

I. SITE INFORMATION ELF	
Site name: On-Post Groundwater Monitoring Wells	**Date of inspection:** April 28, 2010
Location and Region: RMA Region VIII	**EPA ID:** C05210020769
Agency, office, or company leading the five-year review: RVO	**Weather/temperature:** 75°F, 30mph steady clear → cloudy

Remedy Includes: (Check all that apply)

Landfill cover/containment
X Access controls
Institutional controls
Groundwater pump and treatment
Surface water collection and treatment
Monitored natural attenuation
Groundwater containment
Vertical barrier walls
X Other___On-post groundwater monitoring wells, including wells associated with ELF, Basin F, North Plants, Complex Trenches, Shell Trenches, Groundwater Mass Removal and Lime Basins project areas, and the Bison Pilot Area

Attachments: Inspection team roster attached Site map attached

II. INTERVIEWS (Check all that apply)

1. **O&M site manager** _____ _____ _____
   Name Title Date
   Interviewed at site at office by phone Phone no. _____
   Problems, suggestions; Report attached _____

2. **O&M staff** _____ _____ _____
   Name Title Date
   Interviewed at site at office by phone Phone no. _____
   Problems, suggestions; Report attached _____

3. **Local regulatory authorities and response agencies** (i.e., State and Tribal offices, emergency response office, police department, office of public health or environmental health, zoning office, recorder of deeds, or other city and county offices, etc.) Fill in all that apply.

Agency TCHD
Contact Tom K Marrend (Name) ENV Specialist (Title) 4/28/10 (Date) 720-322-1522 (Phone no.)
Problems; suggestions; Report attached

Agency
Contact (Name) (Title) (Date) (Phone no.)
Problems; suggestions; Report attached

Agency
Contact (Name) (Title) (Date) (Phone no.)
Problems; suggestions; Report attached

Agency
Contact (Name) (Title) (Date) (Phone no.)
Problems; suggestions; Report attached

4. **Other interviews** (optional) Report attached.

V. ACCESS AND INSTITUTIONAL CONTROLS

Applicable N/A

A. Fencing

1. **Fencing damaged** Location shown on site map Gates secured N/A
Remarks WELLS WITHIN RMA BOUNDARY

B. Other Access Restrictions

1. **Signs and other security measures** Location shown on site map N/A
Remarks WELL DESIGNATION ON SURFACE CASING.
Access to wells OK.

C. Institutional Controls (ICs)

1. **Implementation and enforcement**

Site conditions imply ICs not properly implemented	Yes	No	N/A
Site conditions imply ICs not being fully enforced	Yes	No	N/A

Type of monitoring (*e.g.*, self-reporting, drive by) _____
Frequency _____
Responsible party/agency _____
Contact _____ _____ _____ _____
Name Title Date Phone no.

Reporting is up-to-date	Yes	No	N/A
Reports are verified by the lead agency	Yes	No	N/A
Specific requirements in deed or decision documents have been met	Yes	No	N/A
Violations have been reported	Yes	No	N/A

Other problems or suggestions: Report attached

_____
_____
_____
_____

2. **Adequacy** ICs are adequate ICs are inadequate N/A
Remarks_____
_____
_____

D. General

1. **Vandalism/trespassing** Location shown on site map No vandalism evident
Remarks_____
_____

2. **Land use changes on site** N/A
Remarks_____
_____

3. **Land use changes off site** N/A
Remarks_____
_____

VI. GENERAL SITE CONDITIONS

A. Roads Applicable N/A

1. **Roads damaged** Location shown on site map Roads adequate N/A
Remarks_____
_____

B. Other Site Conditions

Remarks _____

IX. GROUNDWATER/SURFACE WATER REMEDIES Applicable N/A

A. Groundwater Extraction Wells, Pumps, and Pipelines Applicable N/A

1. **Pumps, Wellhead Plumbing, and Electrical**
   Good condition All required wells properly operating Needs Maintenance N/A
   Remarks PUMPS NOT TURNED ON – UNABLE TO DETERMINE IF OPERATING.

2. **Extraction System Pipelines, Valves, Valve Boxes, and Other Appurtenances**
   Good condition Needs Maintenance
   Remarks _____

3. **Spare Parts and Equipment**
   Readily available Good condition Requires upgrade Needs to be provided
   Remarks _____

C. Treatment System Applicable N/A

1. **Treatment Train** (Check components that apply)
   Metals removal Oil/water separation Bioremediation
   Air stripping Carbon adsorbers
   Filters _____
   Additive (*e.g.*, chelation agent, flocculent) _____
   Others _____
   Good condition Needs Maintenance
   Sampling ports properly marked and functional
   Sampling/maintenance log displayed and up to date
   Equipment properly identified
   Quantity of groundwater treated annually _____
   Quantity of surface water treated annually _____
   Remarks _____

2. **Electrical Enclosures and Panels** (properly rated and functional)
   N/A Good condition Needs Maintenance
   Remarks_____

3. **Tanks, Vaults, Storage Vessels**
   N/A Good condition Proper secondary containment Needs Maintenance
   Remarks_____

4. **Discharge Structure and Appurtenances**
   N/A Good condition Needs Maintenance
   Remarks_____

5. **Treatment Building(s)**
   N/A Good condition (esp. roof and doorways) Needs repair
   Chemicals and equipment properly stored
   Remarks_____

6. **Monitoring Wells** (pump and treatment remedy)
   Properly secured/locked Functioning Routinely sampled Good condition
   All required wells located Needs Maintenance N/A
   Remarks No LOCKS ON WELLS - OTHERWISE CONDITION OK.

XI. OVERALL OBSERVATIONS

A. Implementation of the Remedy

Describe issues and observations relating to whether the remedy is effective and functioning as designed. Begin with a brief statement of what the remedy is to accomplish (i.e., to contain contaminant plume, minimize infiltration and gas emission, etc.).

NEWS OK.

B. Adequacy of O&M

Describe issues and observations related to the implementation and scope of O&M procedures. In particular, discuss their relationship to the current and long-term protectiveness of the remedy.

NEWS OK.

TAB D

NORTH PLANTS LNAPL

Five-Year Review Site Inspection Checklist

(Working document for site inspection. Information may be completed by hand and attached to the Five-Year Review report as supporting documentation of site status. "N/A" refers to "not applicable.")

I. SITE INFORMATION	
Site name: North Plants LNAPL Project	**Date of inspection:** April 27, 2010
Location and Region: RMA Region VIII	**EPA ID:** C05210020769
Agency, office, or company leading the five-year review: RVO	**Weather/temperature:** Clear, cool

Remedy Includes: (Check all that apply)

- Landfill cover/containment
- Access controls
- Institutional controls
- ✗ Groundwater pump and treatment
- Surface water collection and treatment
- Other _____
- Monitored natural attenuation
- Groundwater containment
- Vertical barrier walls

Attachments: Inspection team roster attached Site map attached

II. INTERVIEWS (Check all that apply)

1. **O&M site manager** Tony Lachance/Rick Beardslee (Name) _____ (Title) 4/27/10 (Date)
   Interviewed (at site) at office by phone Phone no. _____
   Problems, suggestions; Report attached _____

2. **O&M staff** _____ (Name) _____ (Title) _____ (Date)
   Interviewed at site at office by phone Phone no. _____
   Problems, suggestions; Report attached _____

3. **Local regulatory authorities and response agencies** (i.e., State and Tribal offices, emergency response office, police department, office of public health or environmental health, zoning office, recorder of deeds, or other city and county offices, etc.) Fill in all that apply.

Agency Environmental Protection Agency
Contact Ron Bertram/Greg Hargraves PM 7/27/10 312-6061
Name Title Date Phone no.
Problems; suggestions; Report attached

Agency
Contact
Name Title Date Phone no.
Problems; suggestions; Report attached

Agency
Contact
Name Title Date Phone no.
Problems; suggestions; Report attached

Agency
Contact
Name Title Date Phone no.
Problems; suggestions; Report attached

4. **Other interviews** (optional) Report attached.

V. ACCESS AND INSTITUTIONAL CONTROLS Applicable N/A

A. Fencing

1. **Fencing damaged** Location shown on site map Gates secured N/A
Remarks

B. Other Access Restrictions

1. **Signs and other security measures** Location shown on site map N/A
Remarks

C. Institutional Controls (ICs)

1. **Implementation and enforcement**

Site conditions imply ICs not properly implemented	Yes	No	N/A
Site conditions imply ICs not being fully enforced	Yes	No	N/A

Type of monitoring (*e.g.*, self-reporting, drive by) _____
Frequency _____
Responsible party/agency _____
Contact _____ _____ _____ _____
Name Title Date Phone no.

Reporting is up-to-date	Yes	No	N/A
Reports are verified by the lead agency	Yes	No	N/A
Specific requirements in deed or decision documents have been met	Yes	No	N/A
Violations have been reported	Yes	No	N/A

Other problems or suggestions: Report attached

2. **Adequacy** ICs are adequate ICs are inadequate N/A
Remarks _____

D. General

1. **Vandalism/trespassing** Location shown on site map (No vandalism evident)
Remarks _____

2. **Land use changes on site** N/A
Remarks Outside Army Maintained Area

3. **Land use changes off site** (N/A)
Remarks _____

VI. GENERAL SITE CONDITIONS

A. Roads Applicable N/A

1. **Roads damaged** Location shown on site map (Roads adequate) N/A
Remarks _____

B. Other Site Conditions

Remarks The North Plants LNAPL Project is currently a pilot Project to gather information for remedy alternatives assessment

IX. GROUNDWATER/SURFACE WATER REMEDIES (Applicable) N/A

A. Groundwater Extraction Wells, Pumps, and Pipelines (Applicable) N/A

1. **Pumps, Wellhead Plumbing, and Electrical**
   (Good condition) All required wells properly operating Needs Maintenance N/A
   Remarks

2. **Extraction System Pipelines, Valves, Valve Boxes, and Other Appurtenances**
   Good condition Needs Maintenance
   Remarks N/A

3. **Spare Parts and Equipment**
   (Readily available) Good condition Requires upgrade Needs to be provided
   Remarks

C. Treatment System Applicable (N/A)

1. **Treatment Train** (Check components that apply)
   Metals removal Oil/water separation Bioremediation
   Air stripping Carbon adsorbers
   Filters
   Additive (*e.g.*, chelation agent, flocculent)
   Others
   Good condition Needs Maintenance
   Sampling ports properly marked and functional
   Sampling/maintenance log displayed and up to date
   Equipment properly identified
   Quantity of groundwater treated annually
   Quantity of surface water treated annually
   Remarks

2. **Electrical Enclosures and Panels** (properly rated and functional)
N/A Good condition Needs Maintenance
Remarks

3. **Tanks, Vaults, Storage Vessels**
N/A Good condition Proper secondary containment Needs Maintenance
Remarks

4. **Discharge Structure and Appurtenances**
N/A Good condition Needs Maintenance
Remarks

5. **Treatment Building(s)**
N/A Good condition (esp. roof and doorways) Needs repair
Chemicals and equipment properly stored
Remarks

6. **Monitoring Wells** (pump and treatment remedy)
Properly secured/locked Functioning Routinely sampled Good condition
All required wells located Needs Maintenance N/A
Remarks Inspected LNAPL recovery well 25301. The well is in good condition, with pad, cover and protective casing in place. Well is also marked with well number on the casing. Inspected well 25139 which is a water level/LNAPL monitoring well on the east side of the project area. This is a 1" PVC well. The well has a cap but no protective casing and the well was not marked anywhere with the well number, so it was difficult to identify the correct well. The project site was found to be clean and free of debris and vegetation.

XI. OVERALL OBSERVATIONS

A. Implementation of the Remedy

Describe issues and observations relating to whether the remedy is effective and functioning as designed. Begin with a brief statement of what the remedy is to accomplish (i.e., to contain contaminant plume, minimize infiltration and gas emission, etc.).

The inspection consisted of observation of the ~~[illegible]~~ condition of wells used for the Pilot Study. Some wells were observed do have no well identification which could cause confusion when collecting monitoring information. Each well should be marked with the well identification and the identification should be located on the casing rather than on the well cap on the inner casing

B. Adequacy of O&M

Describe issues and observations related to the implementation and scope of O&M procedures. In particular, discuss their relationship to the current and long-term protectiveness of the remedy.

North Plants

Five-Year Review Site Inspection Checklist

(Working document for site inspection. Information may be completed by hand and attached to the Five-Year Review report as supporting documentation of site status. "N/A" refers to "not applicable.")

I. SITE INFORMATION	
Site name: On-Post Groundwater Monitoring Wells	**Date of inspection:** April 28, 2010
Location and Region: RMA Region VIII	**EPA ID:** C05210020769
Agency, office, or company leading the five-year review: RVO	**Weather/temperature:**

Remedy Includes: (Check all that apply)

Landfill cover/containment
X Access controls
Institutional controls
Groundwater pump and treatment
Surface water collection and treatment
Monitored natural attenuation
Groundwater containment
Vertical barrier walls
X Other On-post groundwater monitoring wells, including wells associated with ELF, Basin F, North Plants, Complex Trenches, Shell Trenches, Groundwater Mass Removal and Lime Basins project areas, and the Bison Pilot Area

Attachments: Inspection team roster attached Site map attached

II. INTERVIEWS (Check all that apply)

1. **O&M site manager** _____ _____ _____
   Name Title Date
   Interviewed at site at office by phone Phone no. _____
   Problems, suggestions; Report attached _____

2. **O&M staff** _____ _____ _____
   Name Title Date
   Interviewed at site at office by phone Phone no. _____
   Problems, suggestions; Report attached _____

3. **Local regulatory authorities and response agencies** (i.e., State and Tribal offices, emergency response office, police department, office of public health or environmental health, zoning office, recorder of deeds, or other city and county offices, etc.) Fill in all that apply.

Agency TCHD
Contact Vincent Stewart | EHS | 4/27/10 | 720-322-1525
Name | Title | Date | Phone no.
Problems; suggestions; Report attached _____

Agency _____
Contact _____ | _____ | _____ | _____
Name | Title | Date | Phone no.
Problems; suggestions; Report attached _____

Agency _____
Contact _____ | _____ | _____ | _____
Name | Title | Date | Phone no.
Problems; suggestions; Report attached _____

Agency _____
Contact _____ | _____ | _____ | _____
Name | Title | Date | Phone no.
Problems; suggestions; Report attached _____

4. **Other interviews** (optional) Report attached.

V. ACCESS AND INSTITUTIONAL CONTROLS Applicable N/A

A. Fencing

1. **Fencing damaged** Location shown on site map Gates secured N/A
Remarks_____

B. Other Access Restrictions

1. **Signs and other security measures** Location shown on site map N/A
Remarks_____

C. Institutional Controls (ICs)

1. **Implementation and enforcement**

Site conditions imply ICs not properly implemented	Yes	No	N/A
Site conditions imply ICs not being fully enforced	Yes	No	N/A

Type of monitoring (*e.g.*, self-reporting, drive by) _____
Frequency _____
Responsible party/agency _____
Contact _____ _____ _____ _____
Name Title Date Phone no.

Reporting is up-to-date	Yes	No	N/A
Reports are verified by the lead agency	Yes	No	N/A
Specific requirements in deed or decision documents have been met	Yes	No	N/A
Violations have been reported	Yes	No	N/A

Other problems or suggestions: Report attached

_____
_____
_____
_____

2. **Adequacy** ICs are adequate ICs are inadequate N/A
Remarks_____
_____
_____

D. General

1. **Vandalism/trespassing** Location shown on site map No vandalism evident
Remarks_____
_____

2. **Land use changes on site** N/A
Remarks_____
_____

3. **Land use changes off site** N/A
Remarks_____
_____

VI. GENERAL SITE CONDITIONS

A. Roads Applicable N/A

1. **Roads damaged** Location shown on site map Roads adequate N/A
Remarks_____
_____

B. Other Site Conditions

Remarks _____

IX. GROUNDWATER/SURFACE WATER REMEDIES (Applicable) N/A

A. Groundwater Extraction Wells, Pumps, and Pipelines (Applicable) N/A

1. **Pumps, Wellhead Plumbing, and Electrical**
   (Good condition) All required wells properly operating Needs Maintenance N/A
   Remarks _____

2. **Extraction System Pipelines, Valves, Valve Boxes, and Other Appurtenances**
   (Good condition) Needs Maintenance
   Remarks 25301 - Good condition

3. **Spare Parts and Equipment**
   Readily available Good condition Requires upgrade Needs to be provided
   Remarks _____

C. Treatment System Applicable (N/A)

1. **Treatment Train** (Check components that apply)
   Metals removal Oil/water separation Bioremediation
   Air stripping Carbon adsorbers
   Filters _____
   Additive (*e.g.*, chelation agent, flocculent) _____
   Others _____
   Good condition Needs Maintenance
   Sampling ports properly marked and functional
   Sampling/maintenance log displayed and up to date
   Equipment properly identified
   Quantity of groundwater treated annually _____
   Quantity of surface water treated annually _____
   Remarks _____

2.	**Electrical Enclosures and Panels** (properly rated and functional) N/A Good condition Needs Maintenance Remarks_____
3.	**Tanks, Vaults, Storage Vessels** N/A Good condition Proper secondary containment Needs Maintenance Remarks_____
4.	**Discharge Structure and Appurtenances** N/A Good condition Needs Maintenance Remarks_____
5.	**Treatment Building(s)** N/A Good condition (esp. roof and doorways) Needs repair Chemicals and equipment properly stored Remarks_____
6.	**Monitoring Wells** (pump and treatment remedy) Properly secured/locked Functioning Routinely sampled Good condition All required wells located Needs Maintenance N/A Remarks Not Labeled

XI. OVERALL OBSERVATIONS

A. Implementation of the Remedy

Describe issues and observations relating to whether the remedy is effective and functioning as designed. Begin with a brief statement of what the remedy is to accomplish (i.e., to contain contaminant plume, minimize infiltration and gas emission, etc.).

B. Adequacy of O&M

Describe issues and observations related to the implementation and scope of O&M procedures. In particular, discuss their relationship to the current and long-term protectiveness of the remedy.

TAB E

BASIN F

Five-Year Review Site Inspection Checklist

(Working document for site inspection. Information may be completed by hand and attached to the Five-Year Review report as supporting documentation of site status. "N/A" refers to "not applicable.")

I. SITE INFORMATION	
Site name: Basin F Monitoring	**Date of inspection:** April 28, 2010
Location and Region: RMA Region VIII	**EPA ID:** C05210020769
Agency, office, or company leading the five-year review: RVO	**Weather/temperature:** Clear, windy

Remedy Includes: (Check all that apply)

- X Landfill cover/containment
- Access controls
- Institutional controls
- Groundwater pump and treatment
- Surface water collection and treatment
- Other Groundwater Monitoring
- Monitored natural attenuation
- Groundwater containment
- Vertical barrier walls

Attachments: Inspection team roster attached Site map attached

II. INTERVIEWS (Check all that apply)

1. **O&M site manager** Rick Beardslee _____ 4/28/10
   Name Title Date
   Interviewed (at site) at office by phone Phone no. _____
   Problems, suggestions; Report attached _____

2. **O&M staff** _____ _____ _____
   Name Title Date
   Interviewed at site at office by phone Phone no. _____
   Problems, suggestions; Report attached _____

3. **Local regulatory authorities and response agencies** (i.e., State and Tribal offices, emergency response office, police department, office of public health or environmental health, zoning office, recorder of deeds, or other city and county offices, etc.) Fill in all that apply.

Agency Environmental Protection Agency
Contact Ron Bertram (Name) RPM (Title) 7/28/10 (Date) 312-6061 (Phone no.)
Problems; suggestions; Report attached _____

Agency _____
Contact _____ (Name) _____ (Title) _____ (Date) _____ (Phone no.)
Problems; suggestions; Report attached _____

Agency _____
Contact _____ (Name) _____ (Title) _____ (Date) _____ (Phone no.)
Problems; suggestions; Report attached _____

Agency _____
Contact _____ (Name) _____ (Title) _____ (Date) _____ (Phone no.)
Problems; suggestions; Report attached _____

4. **Other interviews** (optional) Report attached.

V. ACCESS AND INSTITUTIONAL CONTROLS Applicable N/A

A. Fencing

1. **Fencing damaged** Location shown on site map Gates secured N/A
Remarks Fencing around Cover area.

B. Other Access Restrictions

1. **Signs and other security measures** Location shown on site map N/A
Remarks Warning Signs for Cover area

C. Institutional Controls (ICs)

1. **Implementation and enforcement**

Site conditions imply ICs not properly implemented	Yes	No	N/A
Site conditions imply ICs not being fully enforced	Yes	No	N/A

Type of monitoring (*e.g.*, self-reporting, drive by) _____
Frequency _____
Responsible party/agency _____
Contact _____ _____ _____ _____
Name Title Date Phone no.

Reporting is up-to-date	Yes	No	N/A
Reports are verified by the lead agency	Yes	No	N/A
Specific requirements in deed or decision documents have been met	Yes	No	N/A
Violations have been reported	Yes	No	N/A

Other problems or suggestions: Report attached

2. **Adequacy** ICs are adequate ICs are inadequate N/A
Remarks _____

D. General

1. **Vandalism/trespassing** Location shown on site map (No vandalism evident)
Remarks _____

2. **Land use changes on site** N/A
Remarks Army Maintained Area

3. **Land use changes off site** (N/A)
Remarks _____

VI. GENERAL SITE CONDITIONS

A. Roads Applicable N/A

1. **Roads damaged** Location shown on site map (Roads adequate) N/A
Remarks _____

B. Other Site Conditions

Remarks _____

_____

_____

_____

_____

_____

IX. GROUNDWATER/SURFACE WATER REMEDIES (Applicable) N/A

A. Groundwater Extraction Wells, Pumps, and Pipelines Applicable (N/A)

1. **Pumps, Wellhead Plumbing, and Electrical**
   Good condition All required wells properly operating Needs Maintenance N/A
   Remarks_____

2. **Extraction System Pipelines, Valves, Valve Boxes, and Other Appurtenances**
   Good condition Needs Maintenance
   Remarks_____

3. **Spare Parts and Equipment**
   Readily available Good condition Requires upgrade Needs to be provided
   Remarks_____

C. Treatment System Applicable (N/A)

1. **Treatment Train** (Check components that apply)
   Metals removal Oil/water separation Bioremediation
   Air stripping Carbon adsorbers
   Filters_____
   Additive (*e.g.*, chelation agent, flocculent)_____
   Others_____
   Good condition Needs Maintenance
   Sampling ports properly marked and functional
   Sampling/maintenance log displayed and up to date
   Equipment properly identified
   Quantity of groundwater treated annually_____
   Quantity of surface water treated annually_____
   Remarks_____

2. **Electrical Enclosures and Panels** (properly rated and functional)
N/A Good condition Needs Maintenance
Remarks

3. **Tanks, Vaults, Storage Vessels**
N/A Good condition Proper secondary containment Needs Maintenance
Remarks

4. **Discharge Structure and Appurtenances**
N/A Good condition Needs Maintenance
Remarks

5. **Treatment Building(s)**
N/A Good condition (esp. roof and doorways) Needs repair
Chemicals and equipment properly stored
Remarks

6. **Monitoring Wells** (pump and treatment remedy)
Properly secured/locked Functioning Routinely sampled Good condition
All required wells located Needs Maintenance N/A
Remarks Inspected down gradient monitoring wells 26157 and 26015. Well 26157 had been extended and has an ill fitting cover. Well has ID on outside cover Well 26015 is in good condition with cap/cover and casing intact and well tag in place

XI. OVERALL OBSERVATIONS

A. Implementation of the Remedy

Describe issues and observations relating to whether the remedy is effective and functioning as designed. Begin with a brief statement of what the remedy is to accomplish (i.e., to contain contaminant plume, minimize infiltration and gas emission, etc.).

Inspection consisted of observing the condition of down gradient monitoring wells. The well condition was acceptable.

B. Adequacy of O&M

Describe issues and observations related to the implementation and scope of O&M procedures. In particular, discuss their relationship to the current and long-term protectiveness of the remedy.

TriCounty Herkru

Five-Year Review Site Inspection Checklist

(Working document for site inspection. Information may be completed by hand and attached to the Five-Year Review report as supporting documentation of site status. "N/A" refers to "not applicable.")

I. SITE INFORMATION Basin F	
Site name: On-Post Groundwater Monitoring Wells	**Date of inspection:** April 28, 2010
Location and Region: RMA Region VIII	**EPA ID:** C05210020769
Agency, office, or company leading the five-year review: RVO	**Weather/temperature:** 75°F, 30mph steady clear.-Pcloudy

Remedy Includes: (Check all that apply)

Landfill cover/containment
X Access controls
Institutional controls
Groundwater pump and treatment
Surface water collection and treatment
Monitored natural attenuation
Groundwater containment
Vertical barrier walls
X Other___On-post groundwater monitoring wells, including wells associated with ELF, Basin F, North Plants, Complex Trenches, Shell Trenches, Groundwater Mass Removal and Lime Basins project areas, and the Bison Pilot Area

Attachments: Inspection team roster attached Site map attached

II. INTERVIEWS (Check all that apply)

1. **O&M site manager** _____ _____ _____
   Name Title Date
   Interviewed at site at office by phone Phone no. _____
   Problems, suggestions; Report attached _____

2. **O&M staff** _____ _____ _____
   Name Title Date
   Interviewed at site at office by phone Phone no. _____
   Problems, suggestions; Report attached _____

3. **Local regulatory authorities and response agencies** (i.e., State and Tribal offices, emergency response office, police department, office of public health or environmental health, zoning office, recorder of deeds, or other city and county offices, etc.) Fill in all that apply.

Agency TCHD
Contact TOMK MARTENA — ENV. SPECIALIST — 4/28/10 — 720-322-1522
Name — Title — Date — Phone no.
Problems; suggestions; Report attached

Agency
Contact
Name — Title — Date — Phone no.
Problems; suggestions; Report attached

Agency
Contact
Name — Title — Date — Phone no.
Problems; suggestions; Report attached

Agency
Contact
Name — Title — Date — Phone no.
Problems; suggestions; Report attached

4. **Other interviews** (optional) Report attached.

V. ACCESS AND INSTITUTIONAL CONTROLS — Applicable — N/A

A. Fencing

1. **Fencing damaged** — Location shown on site map — Gates secured — N/A
Remarks WELLS WITHIN RMA BOUNDARY

B. Other Access Restrictions

1. **Signs and other security measures** — Location shown on site map — N/A
Remarks WELL DESIGNATION ON SURFACE CASING.
ACCESS TO WELLS OK.

C. Institutional Controls (ICs)

1. **Implementation and enforcement**

Site conditions imply ICs not properly implemented	Yes	No	N/A
Site conditions imply ICs not being fully enforced	Yes	No	N/A

Type of monitoring (*e.g.*, self-reporting, drive by) _____
Frequency _____
Responsible party/agency _____
Contact _____ _____ _____ _____
Name Title Date Phone no.

Reporting is up-to-date	Yes	No	N/A
Reports are verified by the lead agency	Yes	No	N/A
Specific requirements in deed or decision documents have been met	Yes	No	N/A
Violations have been reported	Yes	No	N/A

Other problems or suggestions: Report attached

_____
_____
_____
_____

2. **Adequacy** ICs are adequate ICs are inadequate N/A
Remarks _____
_____
_____

D. General

1. **Vandalism/trespassing** Location shown on site map No vandalism evident
Remarks _____
_____

2. **Land use changes on site** N/A
Remarks _____
_____

3. **Land use changes off site** N/A
Remarks _____
_____

VI. GENERAL SITE CONDITIONS

A. Roads Applicable N/A

1. **Roads damaged** Location shown on site map Roads adequate N/A
Remarks _____
_____

B. Other Site Conditions

Remarks _____

IX. GROUNDWATER/SURFACE WATER REMEDIES Applicable N/A

A. Groundwater Extraction Wells, Pumps, and Pipelines Applicable N/A

1. **Pumps, Wellhead Plumbing, and Electrical**
   Good condition All required wells properly operating Needs Maintenance N/A
   Remarks PUMPS NOT TURNED ON - UNABLE TO DETERMINE IF OPERATING.

2. **Extraction System Pipelines, Valves, Valve Boxes, and Other Appurtenances**
   Good condition Needs Maintenance
   Remarks _____

3. **Spare Parts and Equipment**
   Readily available Good condition Requires upgrade Needs to be provided
   Remarks _____

C. Treatment System Applicable N/A

1. **Treatment Train** (Check components that apply)
   Metals removal Oil/water separation Bioremediation
   Air stripping Carbon adsorbers
   Filters _____
   Additive (*e.g.*, chelation agent, flocculent) _____
   Others _____
   Good condition Needs Maintenance
   Sampling ports properly marked and functional
   Sampling/maintenance log displayed and up to date
   Equipment properly identified
   Quantity of groundwater treated annually _____
   Quantity of surface water treated annually _____
   Remarks _____

2.	**Electrical Enclosures and Panels** (properly rated and functional) N/A Good condition Needs Maintenance Remarks
3.	**Tanks, Vaults, Storage Vessels** N/A Good condition Proper secondary containment Needs Maintenance Remarks
4.	**Discharge Structure and Appurtenances** N/A Good condition Needs Maintenance Remarks
5.	**Treatment Building(s)** N/A Good condition (esp. roof and doorways) Needs repair Chemicals and equipment properly stored Remarks
6.	**Monitoring Wells** (pump and treatment remedy) Properly secured/locked Functioning Routinely sampled Good condition All required wells located Needs Maintenance N/A Remarks No locks on wells - otherwise condition ok.

XI. OVERALL OBSERVATIONS

A. Implementation of the Remedy

Describe issues and observations relating to whether the remedy is effective and functioning as designed. Begin with a brief statement of what the remedy is to accomplish (i.e., to contain contaminant plume, minimize infiltration and gas emission, etc.).

WELL 26 157 needs proper well protection - remedy when casing extended

B. Adequacy of O&M

Describe issues and observations related to the implementation and scope of O&M procedures. In particular, discuss their relationship to the current and long-term protectiveness of the remedy.

WELLS OK.

TAB F

ON-POST WELLS - GENERAL

Five-Year Review Site Inspection Checklist

(Working document for site inspection. Information may be completed by hand and attached to the Five-Year Review report as supporting documentation of site status. "N/A" refers to "not applicable.")

I. SITE INFORMATION	
Site name: On Post Monitoring Wells	**Date of inspection:** April 28, 2010
Location and Region: RMA Region VIII	**EPA ID:** C05210020769
Agency, office, or company leading the five-year review: RVO	**Weather/temperature:** Clear, windy

Remedy Includes: (Check all that apply)

- Landfill cover/containment
- ✓ Access controls
- Institutional controls
- Groundwater pump and treatment
- Surface water collection and treatment
- Monitored natural attenuation
- Groundwater containment
- Vertical barrier walls
- Other Sitewide groundwater monitoring wells and wells inside ~~bldg~~ Bison enclosure

Attachments: Inspection team roster attached Site map attached

II. INTERVIEWS (Check all that apply)

1. **O&M site manager** Rick Beardslee _____ 4/28/10
   Name Title Date
   Interviewed (at site) at office by phone Phone no. _____
   Problems, suggestions; Report attached _____

2. **O&M staff** _____ _____ _____
   Name Title Date
   Interviewed at site at office by phone Phone no. _____
   Problems, suggestions; Report attached _____

3. **Local regulatory authorities and response agencies** (i.e., State and Tribal offices, emergency response office, police department, office of public health or environmental health, zoning office, recorder of deeds, or other city and county offices, etc.) Fill in all that apply.

Agency Environmental Protection Agency
Contact _____ _____ 4/28/10 312-6061
Name Title Date Phone no.
Problems; suggestions; Report attached _____

Agency _____
Contact _____ _____ _____ _____
Name Title Date Phone no.
Problems; suggestions; Report attached _____

Agency _____
Contact _____ _____ _____ _____
Name Title Date Phone no.
Problems; suggestions; Report attached _____

Agency _____
Contact _____ _____ _____ _____
Name Title Date Phone no.
Problems; suggestions; Report attached _____

4. **Other interviews** (optional) Report attached.

V. ACCESS AND INSTITUTIONAL CONTROLS Applicable N/A

A. Fencing

1. **Fencing damaged** Location shown on site map Gates secured (N/A)
Remarks Access limited by boundary fence

B. Other Access Restrictions

1. **Signs and other security measures** Location shown on site map (N/A)
Remarks _____

C. Institutional Controls (ICs)

1. **Implementation and enforcement**

Site conditions imply ICs not properly implemented	Yes	No	N/A
Site conditions imply ICs not being fully enforced	Yes	No	N/A

Type of monitoring (*e.g.*, self-reporting, drive by) _____
Frequency _____
Responsible party/agency _____
Contact _____ _____ _____ _____
Name Title Date Phone no.

Reporting is up-to-date	Yes	No	N/A
Reports are verified by the lead agency	Yes	No	N/A
Specific requirements in deed or decision documents have been met	Yes	No	N/A
Violations have been reported	Yes	No	N/A

Other problems or suggestions: Report attached

2. **Adequacy** ICs are adequate ICs are inadequate N/A
Remarks _____

D. General

1. **Vandalism/trespassing** Location shown on site map No vandalism evident
Remarks _____

2. **Land use changes on site** N/A
Remarks _____

3. **Land use changes off site** N/A
Remarks _____

VI. GENERAL SITE CONDITIONS

A. Roads Applicable N/A

1. **Roads damaged** Location shown on site map Roads adequate N/A
Remarks _____

B. Other Site Conditions

Remarks _____

IX. GROUNDWATER/SURFACE WATER REMEDIES (Applicable) N/A

A. Groundwater Extraction Wells, Pumps, and Pipelines Applicable (N/A)

1. **Pumps, Wellhead Plumbing, and Electrical**
   Good condition All required wells properly operating Needs Maintenance (N/A)
   Remarks _____

2. **Extraction System Pipelines, Valves, Valve Boxes, and Other Appurtenances**
   Good condition Needs Maintenance
   Remarks NA

3. **Spare Parts and Equipment**
   Readily available NA Good condition Requires upgrade Needs to be provided
   Remarks NA

C. Treatment System Applicable (N/A)

1. **Treatment Train** (Check components that apply)
   Metals removal Oil/water separation Bioremediation
   Air stripping Carbon adsorbers
   Filters _____
   Additive (*e.g.*, chelation agent, flocculent) _____
   Others _____
   Good condition Needs Maintenance
   Sampling ports properly marked and functional
   Sampling/maintenance log displayed and up to date
   Equipment properly identified
   Quantity of groundwater treated annually _____
   Quantity of surface water treated annually _____
   Remarks _____

2. **Electrical Enclosures and Panels** (properly rated and functional)
N/A Good condition Needs Maintenance
Remarks

3. **Tanks, Vaults, Storage Vessels**
N/A Good condition Proper secondary containment Needs Maintenance
Remarks

4. **Discharge Structure and Appurtenances**
N/A Good condition Needs Maintenance
Remarks

5. **Treatment Building(s)**
N/A Good condition (esp. roof and doorways) Needs repair
Chemicals and equipment properly stored
Remarks

6. **Monitoring Wells** (pump and treatment remedy)
Properly secured/locked Functioning Routinely sampled Good condition
All required wells located Needs Maintenance N/A
Remarks Inspected wells 24105, 27091, 02522 and 04029 which showed damage during previous five year Review

well 24105 is completely damaged and has not changed since 2005 five year review. well 27091 showed a damaged pad in 2005 five year review - has a new pad. wells 02522 had no protective casing and the well PVC casing was broken off at ground surface and had no cap in 2005 five year review. A piece of PVC casing has been added to the well and a cap is in place, however the casing stickup is wobbly. well 04029 was broken off at ground surface and has no protective casing. ~~a stickup piece of~~ No PVC has been added to the well. the well was sawed off clean and a cap put on. the well is not marked except for a marker left on the broken piece of casing laying nearby Also inspected wells 34014 and 34015 that are in the buffalo enclosure to look for damage potentially caused by ~~buffalo~~ Bison. Both well protective covers were on the ground near each well suggesting that the bison had knocked them off.

XI. OVERALL OBSERVATIONS

A. Implementation of the Remedy

Describe issues and observations relating to whether the remedy is effective and functioning as designed. Begin with a brief statement of what the remedy is to accomplish (i.e., to contain contaminant plume, minimize infiltration and gas emission, etc.).

The inspection consisted of observation of wells that showed damage during the last five year review (2005). Well 24105 remains damaged but the other three wells showed that attempts were made to fix the well. Wells 02522 and 04029 have had PVC casing added to the casing that was damaged but the casing addition was somewhat loose. Attempts should be made to strengthen the casing stickup for these wells

B. Adequacy of O&M

Describe issues and observations related to the implementation and scope of O&M procedures. In particular, discuss their relationship to the current and long-term protectiveness of the remedy.

CDPHE

Five-Year Review Site Inspection Checklist

(Working document for site inspection. Information may be completed by hand and attached to the Five-Year Review report as supporting documentation of site status. "N/A" refers to "not applicable.")

General Monitoring Well Inspection

I. SITE INFORMATION	
Site name: On-Post Groundwater Monitoring Wells	**Date of inspection:** April 28, 2010
Location and Region: RMA Region VIII	**EPA ID:** C05210020769
Agency, office, or company leading the five-year review: RVO	**Weather/temperature:**

Remedy Includes: (Check all that apply)

Landfill cover/containment
X Access controls
Institutional controls
Groundwater pump and treatment
Surface water collection and treatment
Monitored natural attenuation
Groundwater containment
Vertical barrier walls
X Other___On-post groundwater monitoring wells, including wells associated with ELF, Basin F, North Plants, Complex Trenches, Shell Trenches, Groundwater Mass Removal and Lime Basins project areas, and the Bison Pilot Area

Attachments: Inspection team roster attached Site map attached

II. INTERVIEWS (Check all that apply)

1. **O&M site manager** _____ _____ _____
   Name Title Date
   Interviewed at site at office by phone Phone no. _____
   Problems, suggestions; Report attached _____

2. **O&M staff** _____ _____ _____
   Name Title Date
   Interviewed at site at office by phone Phone no. _____
   Problems, suggestions; Report attached _____

3. **Local regulatory authorities and response agencies** (i.e., State and Tribal offices, emergency response office, police department, office of public health or environmental health, zoning office, recorder of deeds, or other city and county offices, etc.) Fill in all that apply.

Agency CDPHE
Contact Ken Vogler — Engineer — 4/28/10 — 303 692-3383
Name — Title — Date — Phone no.
Problems; suggestions; Report attached Spot checked selected wells (by EPA) some were damaged on surface. See report p. D-5

Agency _____
Contact _____ — _____ — _____ — _____
Name — Title — Date — Phone no.
Problems; suggestions; Report attached _____

Agency _____
Contact _____ — _____ — _____ — _____
Name — Title — Date — Phone no.
Problems; suggestions; Report attached _____

Agency _____
Contact _____ — _____ — _____ — _____
Name — Title — Date — Phone no.
Problems; suggestions; Report attached _____

4. **Other interviews** (optional) Report attached.

V. ACCESS AND INSTITUTIONAL CONTROLS Applicable N/A

A. Fencing

1. **Fencing damaged** Location shown on site map Gates secured N/A
Remarks _____

B. Other Access Restrictions

1. **Signs and other security measures** Location shown on site map N/A
Remarks _____

C. Institutional Controls (ICs)

1. **Implementation and enforcement**

Site conditions imply ICs not properly implemented	Yes	No	N/A
Site conditions imply ICs not being fully enforced	Yes	No	N/A

Type of monitoring (*e.g.*, self-reporting, drive by) _____
Frequency _____
Responsible party/agency _____
Contact _____ _____ _____ _____
Name Title Date Phone no.

Reporting is up-to-date	Yes	No	N/A
Reports are verified by the lead agency	Yes	No	N/A
Specific requirements in deed or decision documents have been met	Yes	No	N/A
Violations have been reported	Yes	No	N/A

Other problems or suggestions: Report attached

_____
_____
_____
_____

2. **Adequacy** ICs are adequate ICs are inadequate N/A
Remarks_____
_____
_____

D. General

1. **Vandalism/trespassing** Location shown on site map No vandalism evident
Remarks_____
_____

2. **Land use changes on site** N/A
Remarks_____
_____

3. **Land use changes off site** N/A
Remarks_____
_____

VI. GENERAL SITE CONDITIONS

A. Roads Applicable N/A

1. **Roads damaged** Location shown on site map Roads adequate N/A
Remarks_____
_____

B. Other Site Conditions

Remarks _____

_____

_____

_____

_____

_____

IX. GROUNDWATER/SURFACE WATER REMEDIES Applicable N/A

A. Groundwater Extraction Wells, Pumps, and Pipelines Applicable N/A

1. **Pumps, Wellhead Plumbing, and Electrical**
   Good condition All required wells properly operating Needs Maintenance N/A
   Remarks_____

2. **Extraction System Pipelines, Valves, Valve Boxes, and Other Appurtenances**
   Good condition Needs Maintenance
   Remarks_____

3. **Spare Parts and Equipment**
   Readily available Good condition Requires upgrade Needs to be provided
   Remarks_____

C. Treatment System Applicable N/A

1. **Treatment Train** (Check components that apply)
   Metals removal Oil/water separation Bioremediation
   Air stripping Carbon adsorbers
   Filters_____
   Additive (*e.g.*, chelation agent, flocculent)_____
   Others_____
   Good condition Needs Maintenance
   Sampling ports properly marked and functional
   Sampling/maintenance log displayed and up to date
   Equipment properly identified
   Quantity of groundwater treated annually_____
   Quantity of surface water treated annually_____
   Remarks_____

2.	**Electrical Enclosures and Panels** (properly rated and functional) N/A Good condition Needs Maintenance Remarks
3.	**Tanks, Vaults, Storage Vessels** N/A Good condition Proper secondary containment Needs Maintenance Remarks
4.	**Discharge Structure and Appurtenances** N/A Good condition Needs Maintenance Remarks
5.	**Treatment Building(s)** N/A Good condition (esp. roof and doorways) Needs repair Chemicals and equipment properly stored Remarks
6.	**Monitoring Wells** (pump and treatment remedy) Properly secured/locked Functioning Routinely sampled Good condition All required wells located Needs Maintenance N/A Remarks Well 24105 destroyed at surface

Well 27091 inspected & is OK

Well 34014 inspected & is OK in BPA

Well 34015 inspected pad is broken
otherwise well is OK in BPA

Bison knock protective cap off
suggest close w/ bolt

Examined five sanitary sewer caps
in BPA – all OK

Well 04027 broken off at top
Well 04029 broken off at top
Well 02522 inspected & OK

XI. OVERALL OBSERVATIONS

A. Implementation of the Remedy

Describe issues and observations relating to whether the remedy is effective and functioning as designed. Begin with a brief statement of what the remedy is to accomplish (i.e., to contain contaminant plume, minimize infiltration and gas emission, etc.).

B. Adequacy of O&M

Describe issues and observations related to the implementation and scope of O&M procedures. In particular, discuss their relationship to the current and long-term protectiveness of the remedy.

'/R County Health

Five-Year Review Site Inspection Checklist

(Working document for site inspection. Information may be completed by hand and attached to the Five-Year Review report as supporting documentation of site status. "N/A" refers to "not applicable.")

I. SITE INFORMATION	
Site name: On-Post Groundwater Monitoring Wells	**Date of inspection:** April 28, 2010
Location and Region: RMA Region VIII	**EPA ID:** C05210020769
Agency, office, or company leading the five-year review: RVO	**Weather/temperature:** 75°F, 30mph steady clear - P cloudy

Remedy Includes: (Check all that apply)

Landfill cover/containment
X Access controls
Institutional controls
Groundwater pump and treatment
Surface water collection and treatment
Monitored natural attenuation
Groundwater containment
Vertical barrier walls
X Other___On-post groundwater monitoring wells, including wells associated with ELF, Basin F, North Plants, Complex Trenches, Shell Trenches, Groundwater Mass Removal and Lime Basins project areas, and the Bison Pilot Area, North Boundary System, Railyard
Reviewed underlined sites.

Attachments: Inspection team roster attached Site map attached

II. INTERVIEWS (Check all that apply)

1. **O&M site manager** _____ _____ _____
   Name Title Date
   Interviewed at site at office by phone Phone no. _____
   Problems, suggestions; Report attached _____

2. **O&M staff** _____ _____ _____
   Name Title Date
   Interviewed at site at office by phone Phone no. _____
   Problems, suggestions; Report attached _____

3. **Local regulatory authorities and response agencies** (i.e., State and Tribal offices, emergency response office, police department, office of public health or environmental health, zoning office, recorder of deeds, or other city and county offices, etc.) Fill in all that apply.

Agency TCHD
Contact Tom K Martella (Name) | ENV. Specialist (Title) | 4/28/10 (Date) | 726-322-1522 (Phone no.)
Problems; suggestions; Report attached

Agency
Contact (Name) | (Title) | (Date) | (Phone no.)
Problems; suggestions; Report attached

Agency
Contact (Name) | (Title) | (Date) | (Phone no.)
Problems; suggestions; Report attached

Agency
Contact (Name) | (Title) | (Date) | (Phone no.)
Problems; suggestions; Report attached

4. **Other interviews** (optional) Report attached.

V. ACCESS AND INSTITUTIONAL CONTROLS Applicable N/A

A. Fencing

1. **Fencing damaged** Location shown on site map Gates secured N/A
Remarks

B. Other Access Restrictions

1. **Signs and other security measures** Location shown on site map N/A
Remarks Not All wells protect w/ well cover/ surface casing. Well 26157 improper well cover. Well cover off on both wells reviewed in Bison Area (34014 & 34015). Gower well 02522 - No surface casing.

C. Institutional Controls (ICs)

1. **Implementation and enforcement**

Site conditions imply ICs not properly implemented	Yes	No	N/A
Site conditions imply ICs not being fully enforced	Yes	No	N/A

Type of monitoring (*e.g.*, self-reporting, drive by) _____
Frequency _____
Responsible party/agency _____
Contact _____ _____ _____ _____
Name Title Date Phone no.

Reporting is up-to-date	Yes	No	N/A
Reports are verified by the lead agency	Yes	No	N/A
Specific requirements in deed or decision documents have been met	Yes	No	N/A
Violations have been reported	Yes	No	N/A

Other problems or suggestions: Report attached

2. **Adequacy** ICs are adequate ICs are inadequate N/A
Remarks Restricted access to RMA property

D. General

1. **Vandalism/trespassing** Location shown on site map No vandalism evident
Remarks Well 34015 has a broken well pad, wells 04027 & 04029 casing broken, well 025222" PVC casing loose at surface cap not on securely

2. **Land use changes on site** N/A
Remarks

3. **Land use changes off site** N/A
Remarks

VI. GENERAL SITE CONDITIONS

A. Roads Applicable N/A

1. **Roads damaged** Location shown on site map Roads adequate N/A
Remarks

B. Other Site Conditions

Remarks _____

IX. GROUNDWATER/SURFACE WATER REMEDIES Applicable N/A

A. Groundwater Extraction Wells, Pumps, and Pipelines Applicable N/A

1. **Pumps, Wellhead Plumbing, and Electrical**
   Good condition All required wells properly operating Needs Maintenance N/A
   Remarks Pumps NOT TURNED ON - UNABLE TO DETERMINE IF OPERATING

2. **Extraction System Pipelines, Valves, Valve Boxes, and Other Appurtenances**
   Good condition Needs Maintenance
   Remarks N/A

3. **Spare Parts and Equipment**
   Readily available Good condition Requires upgrade Needs to be provided
   Remarks UNKNOWN

C. Treatment System Applicable (N/A)

1. **Treatment Train** (Check components that apply)
   Metals removal Oil/water separation Bioremediation
   Air stripping Carbon adsorbers
   Filters _____
   Additive (*e.g.*, chelation agent, flocculent) _____
   Others _____
   Good condition Needs Maintenance
   Sampling ports properly marked and functional
   Sampling/maintenance log displayed and up to date
   Equipment properly identified
   Quantity of groundwater treated annually _____
   Quantity of surface water treated annually _____
   Remarks _____

2. **Electrical Enclosures and Panels** (properly rated and functional)
N/A Good condition Needs Maintenance
Remarks

3. **Tanks, Vaults, Storage Vessels**
N/A Good condition Proper secondary containment Needs Maintenance
Remarks

4. **Discharge Structure and Appurtenances**
N/A Good condition Needs Maintenance
Remarks

5. **Treatment Building(s)**
N/A Good condition (esp. roof and doorways) Needs repair
Chemicals and equipment properly stored
Remarks

6. **Monitoring Wells** (pump and treatment remedy)
Properly secured/locked Functioning Routinely sampled Good condition
All required wells located Needs Maintenance N/A
Remarks All wells UNLOCKED, well CAPS OFF INSIDE BISON AREA (34014 & 34015 ~~26015 & 26016~~), well PADS BROKEN (34015), CASING (PVC) LOOSE AT SURFACE (02522).

XI. OVERALL OBSERVATIONS

A. Implementation of the Remedy

Describe issues and observations relating to whether the remedy is effective and functioning as designed. Begin with a brief statement of what the remedy is to accomplish (i.e., to contain contaminant plume, minimize infiltration and gas emission, etc.).

WELL 24105 (North Boundary) DAMAGED NEEDS REPLACEMENT, WELLS 04027 & 04029 (RAILYARD) 2" CASING BROKEN NEEDS REPLACING, WELLS 04026 (RAILYARD), 02522 (~~[illegible]~~) HAVE LOOSE CASINGS AT SURFACE SHOULD TAPE OVER OR OTHERWISE SECURE TO RESTRICT INFILTRATION. WELLS BY RAILYARD (04027, 04026, 04029) MAY NEED CASINGS PROTECTED, DAMAGE MAY HAVE OCCURRED FROM WILDLIFE (DEER RUBBING ON CASING).

B. Adequacy of O&M

Describe issues and observations related to the implementation and scope of O&M procedures. In particular, discuss their relationship to the current and long-term protectiveness of the remedy.

SOME WELLS (RAILYARD SPECIFICAL) APPEARED TO BE IN DAMAGED CONDITION FOR EXTENDED PERIOD.

TAB G
OFF-POST ARMY WELLS

Five-Year Review Site Inspection Checklist

(Working document for site inspection. Information may be completed by hand and attached to the Five-Year Review report as supporting documentation of site status. "N/A" refers to "not applicable.")

I. SITE INFORMATION	
Site name: Off-Post Private Wells	**Date of inspection:** April 29, 2010
Location and Region: RMA Region VIII	**EPA ID:** C05210020769
Agency, office, or company leading the five-year review: RVO	**Weather/temperature:** Cloudy, Cool

Remedy Includes: (Check all that apply)

Landfill cover/containment
Access controls
Institutional controls
Groundwater pump and treatment
Surface water collection and treatment
Monitored natural attenuation
Groundwater containment
Vertical barrier walls
X Other___Private off-post groundwater wells sampled by TCHD in plume areas, may include domestic wells and wells used for irrigation.

Attachments: Inspection team roster attached Site map attached

II. INTERVIEWS (Check all that apply)

1. **O&M site manager** Rick Beardslee (Name) _____ (Title) 4/29/10 (Date)
   Interviewed (at site) at office by phone Phone no. _____
   Problems, suggestions; Report attached _____

2. **O&M staff** _____ (Name) _____ (Title) _____ (Date)
   Interviewed at site at office by phone Phone no. _____
   Problems, suggestions; Report attached _____

3. **Local regulatory authorities and response agencies** (i.e., State and Tribal offices, emergency response office, police department, office of public health or environmental health, zoning office, recorder of deeds, or other city and county offices, etc.) Fill in all that apply.

Agency Environmental Protection Agency
Contact Ben Berlson (Name) RPM (Title) 4/29/10 (Date) 312-6061 (Phone no.)
Problems; suggestions; Report attached _____

Agency _____
Contact _____ (Name) _____ (Title) _____ (Date) _____ (Phone no.)
Problems; suggestions; Report attached _____

Agency _____
Contact _____ (Name) _____ (Title) _____ (Date) _____ (Phone no.)
Problems; suggestions; Report attached _____

Agency _____
Contact _____ (Name) _____ (Title) _____ (Date) _____ (Phone no.)
Problems; suggestions; Report attached _____

4. **Other interviews** (optional) Report attached.

V. ACCESS AND INSTITUTIONAL CONTROLS Applicable N/A

A. Fencing

1. **Fencing damaged** Location shown on site map Gates secured (N/A)
Remarks _____

B. Other Access Restrictions

1. **Signs and other security measures** Location shown on site map (N/A)
Remarks _____

C. Institutional Controls (ICs)

1. **Implementation and enforcement**

Site conditions imply ICs not properly implemented	Yes	No	N/A
Site conditions imply ICs not being fully enforced	Yes	No	N/A

Type of monitoring (*e.g.*, self-reporting, drive by) _____
Frequency _____
Responsible party/agency _____
Contact _____ _____ _____ _____
Name Title Date Phone no.

Reporting is up-to-date	Yes	No	N/A
Reports are verified by the lead agency	Yes	No	N/A
Specific requirements in deed or decision documents have been met	Yes	No	N/A
Violations have been reported	Yes	No	N/A

Other problems or suggestions: Report attached

_____
_____
_____
_____

2. **Adequacy** ICs are adequate ICs are inadequate N/A
Remarks_____
_____
_____

D. General

1. **Vandalism/trespassing** Location shown on site map No vandalism evident
Remarks_____
_____

2. **Land use changes on site** N/A
Remarks_____
_____

3. **Land use changes off site** N/A
Remarks_____
_____

VI. GENERAL SITE CONDITIONS

A. Roads Applicable N/A

1. **Roads damaged** Location shown on site map Roads adequate N/A
Remarks_____
_____

B. Other Site Conditions

Remarks _____

_____

_____

_____

_____

_____

IX. GROUNDWATER/SURFACE WATER REMEDIES (Applicable) N/A

A. Groundwater Extraction Wells, Pumps, and Pipelines ~~Applicable~~ (N/A)

1. **Pumps, Wellhead Plumbing, and Electrical**
   Good condition All required wells properly operating Needs Maintenance N/A
   Remarks_____

2. **Extraction System Pipelines, Valves, Valve Boxes, and Other Appurtenances**
   Good condition Needs Maintenance
   Remarks_____

3. **Spare Parts and Equipment**
   G Readily available Good condition G Requires upgrade Needs to be provided
   Remarks_____

C. Treatment System Applicable (N/A)

1. **Treatment Train** (Check components that apply)
   Metals removal Oil/water separation Bioremediation
   Air stripping Carbon adsorbers
   Filters_____
   Additive (*e.g.*, chelation agent, flocculent)_____
   Others_____
   Good condition Needs Maintenance
   Sampling ports properly marked and functional
   Sampling/maintenance log displayed and up to date
   Equipment properly identified
   Quantity of groundwater treated annually_____
   Quantity of surface water treated annually_____
   Remarks_____

2. **Electrical Enclosures and Panels** (properly rated and functional)
N/A Good condition Needs Maintenance
Remarks

3. **Tanks, Vaults, Storage Vessels**
N/A Good condition Proper secondary containment Needs Maintenance
Remarks

4. **Discharge Structure and Appurtenances**
N/A Good condition Needs Maintenance
Remarks

5. **Treatment Building(s)**
N/A Good condition (esp. roof and doorways) Needs repair
Chemicals and equipment properly stored
Remarks

6. **Monitoring Wells** (pump and treatment remedy)
Properly secured/locked Functioning Routinely sampled Good condition
All required wells located Needs Maintenance N/A
Remarks Inspected off post Army wells 37349, 37347, 37327 and 37374. Well 37349 had a damaged protective casing and a cover that could not be locked in the 2005 five year review. The casing and cover have been fixed and are now locked. Well 37327 had been found to ~~only~~ have no protective casing and the PVC inner casin was broken off, in the 2005 five year review inspection. The ~~one~~ well has been fixed and a protective casing and cover added. The well is locked. Well 37374 had a broken casing in 2005 five year review. The well now has a flushmount cover which is bolted in place. Well 37347 was buried during road construction but was found and fixed with a manhole in the new street for access.

XI. OVERALL OBSERVATIONS

A. Implementation of the Remedy

Describe issues and observations relating to whether the remedy is effective and functioning as designed. Begin with a brief statement of what the remedy is to accomplish (i.e., to contain contaminant plume, minimize infiltration and gas emission, etc.).

The inspection consisted of observations of selected OFF Post wells that had shown to be damaged during the previous five year review. the wells observed had all been fixed and were in good condition

B. Adequacy of O&M

Describe issues and observations related to the implementation and scope of O&M procedures. In particular, discuss their relationship to the current and long-term protectiveness of the remedy.

TAB H

RAILYARD MOTOR POOL EXTRACTION

Five-Year Review Site Inspection Checklist

(Working document for site inspection. Information may be completed by hand and attached to the Five-Year Review report as supporting documentation of site status. "N/A" refers to "not applicable.")

I. SITE INFORMATION	
Site name: Railyard Extraction Facility	**Date of inspection:** April 27, 2010
Location and Region: RMA Region VIII	**EPA ID:** C05210020769
Agency, office, or company leading the five-year review: RVO	**Weather/temperature:** Clear warm

Remedy Includes: (Check all that apply)

- Landfill cover/containment
- X Access controls
- Institutional controls
- X Groundwater pump and treatment
- Surface water collection and treatment
- Other _____
- Monitored natural attenuation
- Groundwater containment
- Vertical barrier walls

Attachments: Inspection team roster attached Site map attached

II. INTERVIEWS (Check all that apply)

1. **O&M site manager** Tony Lachance/Rick Beardslee _____ _____
   Name Title Date
   Interviewed (at site) at office by phone Phone no. _____
   Problems, suggestions; Report attached _____

2. **O&M staff** _____ _____ _____
   Name Title Date
   Interviewed at site at office by phone Phone no. _____
   Problems, suggestions; Report attached _____

3. **Local regulatory authorities and response agencies** (i.e., State and Tribal offices, emergency response office, police department, office of public health or environmental health, zoning office, recorder of deeds, or other city and county offices, etc.) Fill in all that apply.

Agency Environmental Protection Agency
Contact Ron Bertram/Grey Hargraves RPMs 4/27/10 312-6061
Name Title Date Phone no.
Problems; suggestions; Report attached _____

Agency _____
Contact _____ _____ _____ _____
Name Title Date Phone no.
Problems; suggestions; Report attached _____

Agency _____
Contact _____ _____ _____ _____
Name Title Date Phone no.
Problems; suggestions; Report attached _____

Agency _____
Contact _____ _____ _____ _____
Name Title Date Phone no.
Problems; suggestions; Report attached _____

4. **Other interviews** (optional) Report attached.

V. ACCESS AND INSTITUTIONAL CONTROLS Applicable N/A

A. Fencing

1. **Fencing damaged** Location shown on site map Gates secured (N/A)
Remarks _____

B. Other Access Restrictions

1. **Signs and other security measures** Location shown on site map (N/A)
Remarks _____

C. Institutional Controls (ICs)

1. **Implementation and enforcement**

Site conditions imply ICs not properly implemented	Yes	No	N/A
Site conditions imply ICs not being fully enforced	Yes	No	N/A

Type of monitoring (*e.g.*, self-reporting, drive by) _____
Frequency _____
Responsible party/agency _____
Contact _____ _____ _____ _____
Name Title Date Phone no.

Reporting is up-to-date	Yes	No	N/A
Reports are verified by the lead agency	Yes	No	N/A
Specific requirements in deed or decision documents have been met	Yes	No	N/A
Violations have been reported	Yes	No	N/A

Other problems or suggestions: Report attached

2. **Adequacy** ICs are adequate ICs are inadequate N/A
Remarks _____

D. General

1. **Vandalism/trespassing** Location shown on site map (No vandalism evident)
Remarks _____

2. **Land use changes on site** N/A
Remarks Treatment system is still on NPL

3. **Land use changes off site** (N/A)
Remarks _____

VI. GENERAL SITE CONDITIONS

A. Roads Applicable N/A

1. **Roads damaged** Location shown on site map (Roads adequate) N/A
Remarks _____

B. Other Site Conditions

Remarks _____

IX. GROUNDWATER/SURFACE WATER REMEDIES (Applicable) N/A

A. Groundwater Extraction Wells, Pumps, and Pipelines Applicable N/A

1. **Pumps, Wellhead Plumbing, and Electrical**
   Good condition (All required wells properly operating) Needs Maintenance N/A
   Remarks _____

2. **Extraction System Pipelines, Valves, Valve Boxes, and Other Appurtenances**
   (Good condition) Needs Maintenance
   Remarks _____

3. **Spare Parts and Equipment**
   Readily available Good condition Requires upgrade Needs to be provided
   Remarks Spare carbon tanks available on site

C. Treatment System Applicable N/A

1. **Treatment Train** (Check components that apply)
   Metals removal Oil/water separation Bioremediation
   Air stripping (Carbon adsorbers)
   Filters _____
   Additive (*e.g.*, chelation agent, flocculent) _____
   Others _____
   (Good condition) Needs Maintenance
   Sampling ports properly marked and functional – Ports were not marked.
   Sampling/maintenance log displayed and up to date – O&M Manual not available in treatment building
   Equipment properly identified ·
   Quantity of groundwater treated annually _____
   Quantity of surface water treated annually _____
   Remarks Treatment Plant clean and operating. No spills or leaks identified. No evidence of animal intrusion.

2. **Electrical Enclosures and Panels** (properly rated and functional)
N/A Good condition Needs Maintenance
Remarks Panels not looked.

3. **Tanks, Vaults, Storage Vessels**
N/A Good condition Proper secondary containment Needs Maintenance
Remarks

4. **Discharge Structure and Appurtenances**
N/A Good condition Needs Maintenance
Remarks

5. **Treatment Building(s)**
N/A Good condition (esp. roof and doorways) Needs repair
Chemicals and equipment properly stored
Remarks

6. **Monitoring Wells** (pump and treatment remedy)
Properly secured/locked Functioning Routinely sampled Good condition
All required wells located Needs Maintenance N/A
Remarks ~~Lock~~. Inspected monitoring wells 03527, 03001. well 03001 has a gouged and uneven inner casing top which may affect accuracy of water level measurements. well had no protectiv casing or cover. inner casing lid was on well.

well 03527 in good condition

XI. OVERALL OBSERVATIONS

A. Implementation of the Remedy

Describe issues and observations relating to whether the remedy is effective and functioning as designed. Begin with a brief statement of what the remedy is to accomplish (i.e., to contain contaminant plume, minimize infiltration and gas emission, etc.).

~~Remedy~~ Inspection consisted of observation of the RYTS treatment plant and selected system monitoring wells. The treatment plant was in good condition but sampling ports were not marked and no O&M manual was found. The sampling ports should be marked and an O&M manual should be present. Well O3001, a monitoring well had a groove on uneven casing surface which could effect water level measurements. The casing should be fixed.

B. Adequacy of O&M

Describe issues and observations related to the implementation and scope of O&M procedures. In particular, discuss their relationship to the current and long-term protectiveness of the remedy.

CDPHE

OSWER No. 9355.7-03B-P

Five-Year Review Site Inspection Checklist

(Working document for site inspection. Information may be completed by hand and attached to the Five-Year Review report as supporting documentation of site status. "N/A" refers to "not applicable.")

I. SITE INFORMATION	
Site name: Railyard Extraction Facility	**Date of inspection:** April 27, 2010
Location and Region: RMA Region VIII	**EPA ID:** C05210020769
Agency, office, or company leading the five-year review: RVO	**Weather/temperature:**

Remedy Includes: (Check all that apply)

- Landfill cover/containment
- X Access controls
- Institutional controls
- X Groundwater pump and treatment
- Surface water collection and treatment
- Other _____
- Monitored natural attenuation
- Groundwater containment
- Vertical barrier walls

Attachments: Inspection team roster attached Site map attached

II. INTERVIEWS (Check all that apply)

1. **O&M site manager** _____ _____ _____
   Name Title Date
   Interviewed at site at office by phone Phone no. _____
   Problems, suggestions; Report attached _____

2. **O&M staff** _____ _____ _____
   Name Title Date
   Interviewed at site at office by phone Phone no. _____
   Problems, suggestions; Report attached _____

3. **Local regulatory authorities and response agencies** (i.e., State and Tribal offices, emergency response office, police department, office of public health or environmental health, zoning office, recorder of deeds, or other city and county offices, etc.) Fill in all that apply.

Agency CDPHE
Contact Ken Vogler — Engineer — 4/27/10 — 3 692-3387
Name — Title — Date — Phone no.
Problems; suggestions; Report attached All OK except see p. D-5

Agency _____
Contact _____ — _____ — _____ — _____
Name — Title — Date — Phone no.
Problems; suggestions; Report attached _____

Agency _____
Contact _____ — _____ — _____ — _____
Name — Title — Date — Phone no.
Problems; suggestions; Report attached _____

Agency _____
Contact _____ — _____ — _____ — _____
Name — Title — Date — Phone no.
Problems; suggestions; Report attached _____

4. **Other interviews** (optional) Report attached.

V. ACCESS AND INSTITUTIONAL CONTROLS Applicable N/A

A. Fencing

1. **Fencing damaged** Location shown on site map Gates secured N/A
Remarks _____

B. Other Access Restrictions

1. **Signs and other security measures** Location shown on site map N/A
Remarks _____

C. Institutional Controls (ICs)

1. **Implementation and enforcement**

Site conditions imply ICs not properly implemented	Yes	No	N/A
Site conditions imply ICs not being fully enforced	Yes	No	N/A

Type of monitoring (*e.g.*, self-reporting, drive by) _____
Frequency _____
Responsible party/agency _____
Contact _____ _____ _____ _____
Name Title Date Phone no.

Reporting is up-to-date	Yes	No	N/A
Reports are verified by the lead agency	Yes	No	N/A
Specific requirements in deed or decision documents have been met	Yes	No	N/A
Violations have been reported	Yes	No	N/A

Other problems or suggestions: Report attached

_____
_____
_____
_____

2. **Adequacy** ICs are adequate ICs are inadequate N/A
Remarks _____
_____
_____

D. General

1. **Vandalism/trespassing** Location shown on site map No vandalism evident
Remarks _____
_____

2. **Land use changes on site** N/A
Remarks _____
_____

3. **Land use changes off site** N/A
Remarks _____
_____

VI. GENERAL SITE CONDITIONS

A. Roads Applicable N/A

1. **Roads damaged** Location shown on site map Roads adequate N/A
Remarks _____
_____

B. Other Site Conditions

Remarks _____

_____

_____

_____

_____

_____

IX. GROUNDWATER WATER REMEDIES Applicable N/A

A. Groundwater Extraction Wells, Pumps, and Pipelines Applicable N/A

1. **Pumps, Wellhead Plumbing, and Electrical**
   Good condition All required wells properly operating Needs Maintenance N/A
   Remarks_____

2. **Extraction System Pipelines, Valves, Valve Boxes, and Other Appurtenances**
   Good condition Needs Maintenance
   Remarks_____

3. **Spare Parts and Equipment**
   Readily available Good condition Requires upgrade Needs to be provided
   Remarks_____

C. Treatment System Applicable N/A

1. **Treatment Train** (Check components that apply)
   Metals removal Oil/water separation Bioremediation
   Air stripping Carbon adsorbers
   Filters_____
   Additive (*e.g.*, chelation agent, flocculent)_____
   Others_____
   Good condition Needs Maintenance
   Sampling ports properly marked and functional
   Sampling/maintenance log displayed and up to date
   Equipment properly identified
   Quantity of groundwater treated annually_____
   Quantity of surface water treated annually_____
   Remarks_____

2. **Electrical Enclosures and Panels** (properly rated and functional)
   N/A Good condition Needs Maintenance
   Remarks_____

3. **Tanks, Vaults, Storage Vessels**
   N/A Good condition Proper secondary containment Needs Maintenance
   Remarks Minor spillage noted at top of one tank in treatment building

4. **Discharge Structure and Appurtenances**
   N/A Good condition Needs Maintenance
   Remarks_____

5. **Treatment Building(s)**
   N/A Good condition (esp. roof and doorways) Needs repair
   Chemicals and equipment properly stored
   Remarks_____

6. **Monitoring Wells** (pump and treatment remedy)
   Properly secured/locked Functioning Routinely sampled Good condition
   All required wells located Needs Maintenance N/A
   Remarks_____

XI. OVERALL OBSERVATIONS

A. Implementation of the Remedy

Describe issues and observations relating to whether the remedy is effective and functioning as designed. Begin with a brief statement of what the remedy is to accomplish (i.e., to contain contaminant plume, minimize infiltration and gas emission, etc.).

B. Adequacy of O&M

Describe issues and observations related to the implementation and scope of O&M procedures. In particular, discuss their relationship to the current and long-term protectiveness of the remedy.

TAB I

CERCLA WTF SPTF

Five-Year Review Site Inspection Checklist

(Working document for site inspection. Information may be completed by hand and attached to the Five-Year Review report as supporting documentation of site status. "N/A" refers to "not applicable.")

I. SITE INFORMATION	
Site name: CERCLA WTF / Lime Basins Extraction	**Date of inspection:** April 27, 2010
Location and Region: RMA Region VIII	**EPA ID:** C05210020769
Agency, office, or company leading the five-year review: RVO	**Weather/temperature:** Clear, warm.

Remedy Includes: (Check all that apply)

- Landfill cover/containment
- X Access controls
- Institutional controls
- X Groundwater pump and treatment
- Surface water collection and treatment
- X Other__Wastewater/Groundwater Treatment Processes Inspected the Lime Basins mass removal and dewatering systems and CERCA Treatment Plant and Metering building
- Monitored natural attenuation
- X Groundwater containment
- X Vertical barrier walls

Attachments: Inspection team roster attached Site map attached

II. INTERVIEWS (Check all that apply)

1. **O&M site manager** Rick Beardslee _____ _____
   Name Title Date
   Interviewed (at site) at office by phone Phone no. _____
   Problems, suggestions; Report attached _____

2. **O&M staff** _____ _____ _____
   Name Title Date
   Interviewed at site at office by phone Phone no. _____
   Problems, suggestions; Report attached _____

3. **Local regulatory authorities and response agencies** (i.e., State and Tribal offices, emergency response office, police department, office of public health or environmental health, zoning office, recorder of deeds, or other city and county offices, etc.) Fill in all that apply.

Agency Environmental Protection Agency
Contact Ron Bertram / Rick Beardslee RPMs _____ 312-6061
Name Title Date Phone no.
Problems; suggestions; Report attached _____

Agency _____
Contact _____ _____ _____ _____
Name Title Date Phone no.
Problems; suggestions; Report attached _____

Agency _____
Contact _____ _____ _____ _____
Name Title Date Phone no.
Problems; suggestions; Report attached _____

Agency _____
Contact _____ _____ _____ _____
Name Title Date Phone no.
Problems; suggestions; Report attached _____

4. **Other interviews** (optional) Report attached.

V. ACCESS AND INSTITUTIONAL CONTROLS Applicable N/A

A. Fencing

1. **Fencing damaged** Location shown on site map Gates secured N/A
Remarks Fencing around CERCLA Plant in good condition
Lime Basins is within perimeter covers fence

B. Other Access Restrictions

1. **Signs and other security measures** Location shown on site map N/A
Remarks Signs are obilisym in place and near Lime Basins
Gump and dewatering system are in good condition

C. Institutional Controls (ICs)

1. **Implementation and enforcement**

Site conditions imply ICs not properly implemented	Yes	No	N/A
Site conditions imply ICs not being fully enforced	Yes	No	N/A

Type of monitoring (*e.g.*, self-reporting, drive by) _____
Frequency _____
Responsible party/agency _____
Contact _____ _____ _____ _____
Name Title Date Phone no.

Reporting is up-to-date	Yes	No	N/A
Reports are verified by the lead agency	Yes	No	N/A
Specific requirements in deed or decision documents have been met	Yes	No	N/A
Violations have been reported	Yes	No	N/A

Other problems or suggestions: Report attached

2. **Adequacy** ICs are adequate ICs are inadequate N/A
Remarks _____

D. General

1. **Vandalism/trespassing** Location shown on site map (No vandalism evident)
Remarks _____

2. **Land use changes on site** (N/A)
Remarks Lime Basins is with Army retained area CERCLA Plant in NPL but scheduled for demolition in 2010

3. **Land use changes off site** N/A
Remarks _____

VI. GENERAL SITE CONDITIONS

A. Roads Applicable N/A

1. **Roads damaged** Location shown on site map (Roads adequate) N/A
Remarks _____

B. Other Site Conditions

Remarks _____

IX. GROUNDWATER/SURFACE WATER REMEDIES (Applicable) N/A

A. Groundwater Extraction Wells, Pumps, and Pipelines (Applicable) N/A

1. **Pumps, Wellhead Plumbing, and Electrical**
   Good condition All required wells properly operating Needs Maintenance N/A
   Remarks Problems currently encountered with Extraction well DW10 requiring removal of PVC piping from well. At time of inspection pump was laying on ground near well in unsecured condition and possibly contaminated.

2. **Extraction System Pipelines, Valves, Valve Boxes, and Other Appurtenances**
   (Good condition) Needs Maintenance
   Remarks _____

3. **Spare Parts and Equipment**
   (Readily available) Good condition Requires upgrade Needs to be provided
   Remarks _____

C. Treatment System (Applicable) N/A

1. **Treatment Train** (Check components that apply)
   (Metals removal) Oil/water separation (Bioremediation)
   (Air stripping) (Carbon adsorbers)
   Filters _____
   Additive (*e.g.*, chelation agent, flocculent) _____
   Others _____
   Good condition Needs Maintenance
   Sampling ports properly marked and functional
   Sampling/maintenance log displayed and up to date — No O&M Manual in treatment plant
   Equipment properly identified
   Quantity of groundwater treated annually _____
   Quantity of surface water treated annually _____
   Remarks _____

2. **Electrical Enclosures and Panels** (properly rated and functional)
N/A (Good condition) Needs Maintenance
Remarks

3. **Tanks, Vaults, Storage Vessels**
N/A Good condition Proper secondary containment Needs Maintenance
Remarks Inspected metering building. Building is in neat, clean condition, lights & fan working, flow meter working, no infestation from animals
tanks and other vessels in good condition

4. **Discharge Structure and Appurtenances**
N/A Good condition Needs Maintenance
Remarks Did not Inspect

5. **Treatment Building(s)**
N/A Good condition (esp. roof and doorways) Needs repair
Chemicals and equipment properly stored
Remarks Building in neat and clean condition, no spills or leaks, no animal infestation.

6. **Monitoring Wells** (pump and treatment remedy)
Properly secured/locked Functioning Routinely sampled Good condition
All required wells located Needs Maintenance N/A
Remarks Inspected Lime Basins dewatering extraction wells DW-9 (36319) and DW-10 (36320) DW-9 had an odor (possibly DCPD) upon opening cover of well. well was in good condition. DW-10 not operation at time of inspection due to corrosion of PVC piping in the well due to high organic concentrations. Pump from DW-10 left on ground in unsecured condition and possibly contaminated with organic contaminants DW-10 surface casing in good condition. Smelled odor when shell casing lifted.

Also inspected monitoring wells 36210 and 36212 which are monitored as part of Lime Basins groundwater mass removal Project. Both wells in good condition. well 36210 has well number marked on casing while well 36212 is only marked on inner casing cap.

XI. OVERALL OBSERVATIONS

A. Implementation of the Remedy

Describe issues and observations relating to whether the remedy is effective and functioning as designed. Begin with a brief statement of what the remedy is to accomplish (i.e., to contain contaminant plume, minimize infiltration and gas emission, etc.).

Inspected Groundwater mass removal and dewatering system, and metering building as well as CERCL treatment Plant the treatment plant and metering building were in acceptable condition. However dewatering well DW-10 (36320) was not operating due to corrosion of well materials by DNAPL the well pump was laying on the ground and may be contaminated. The well pump should have been decontaminated and placed in a secure condition

B. Adequacy of O&M

Describe issues and observations related to the implementation and scope of O&M procedures. In particular, discuss their relationship to the current and long-term protectiveness of the remedy.

CDPHE

OSWER No. 9355.7-03B-P

Five-Year Review Site Inspection Checklist

(Working document for site inspection. Information may be completed by hand and attached to the Five-Year Review report as supporting documentation of site status. "N/A" refers to "not applicable.")

I. SITE INFORMATION	
Site name: Groundwater Mass Removal System	**Date of inspection:** April 27, 2010
Location and Region: RMA Region VIII	**EPA ID:** C05210020769
Agency, office, or company leading the five-year review: RVO	**Weather/temperature:**
Remedy Includes: (Check all that apply) Landfill cover/containment X Access controls Institutional controls X Groundwater pump and treatment Surface water collection and treatment Other_____ Monitored natural attenuation Groundwater containment Vertical barrier walls	
Attachments: Inspection team roster attached Site map attached	
II. INTERVIEWS (Check all that apply)	
1. **O&M site manager** _____ _____ _____ Name Title Date Interviewed at site at office by phone Phone no. _____ Problems, suggestions; Report attached _____	
2. **O&M staff** _____ _____ _____ Name Title Date Interviewed at site at office by phone Phone no. _____ Problems, suggestions; Report attached _____	

3. **Local regulatory authorities and response agencies** (i.e., State and Tribal offices, emergency response office, police department, office of public health or environmental health, zoning office, recorder of deeds, or other city and county offices, etc.) Fill in all that apply.

Agency CDPHE
Contact Ken Vogler — Engineer — 4/27/18 — 3 692-3383
Name — Title — Date — Phone no.
Problems; suggestions; Report attached All OK except encrusted valves
report exp 3-4

Agency _____
Contact _____ _____ _____ _____
Name — Title — Date — Phone no.
Problems; suggestions; Report attached _____

Agency _____
Contact _____ _____ _____ _____
Name — Title — Date — Phone no.
Problems; suggestions; Report attached _____

Agency _____
Contact _____ _____ _____ _____
Name — Title — Date — Phone no.
Problems; suggestions; Report attached _____

4. **Other interviews** (optional) Report attached.

V. ACCESS AND INSTITUTIONAL CONTROLS Applicable N/A

A. Fencing

1. **Fencing damaged** Location shown on site map Gates secured N/A
Remarks _____

B. Other Access Restrictions

1. **Signs and other security measures** Location shown on site map N/A
Remarks _____

C. Institutional Controls (ICs)

1. **Implementation and enforcement**

Site conditions imply ICs not properly implemented	Yes	No	N/A
Site conditions imply ICs not being fully enforced	Yes	No	N/A

Type of monitoring (*e.g.*, self-reporting, drive by) _____
Frequency _____
Responsible party/agency _____
Contact _____ _____ _____ _____
Name Title Date Phone no.

Reporting is up-to-date	Yes	No	N/A
Reports are verified by the lead agency	Yes	No	N/A
Specific requirements in deed or decision documents have been met	Yes	No	N/A
Violations have been reported	Yes	No	N/A

Other problems or suggestions: Report attached
_____
_____
_____
_____

2. **Adequacy** ICs are adequate ICs are inadequate N/A
Remarks_____
_____
_____

D. General

1. **Vandalism/trespassing** Location shown on site map No vandalism evident
Remarks_____
_____

2. **Land use changes on site** N/A
Remarks_____
_____

3. **Land use changes off site** N/A
Remarks_____
_____

VI. GENERAL SITE CONDITIONS

A. Roads Applicable N/A

1. **Roads damaged** Location shown on site map Roads adequate N/A
Remarks_____
_____

B. Other Site Conditions

Remarks _____

IX. GROUNDWATER WATER REMEDIES Applicable N/A

A. Groundwater Extraction Wells, Pumps, and Pipelines Applicable N/A

1. **Pumps, Wellhead Plumbing, and Electrical**
   Good condition All required wells properly operating Needs Maintenance N/A
   Remarks _____

2. **Extraction System Pipelines, Valves, Valve Boxes, and Other Appurtenances**
   Good condition Needs Maintenance
   Remarks _____

3. **Spare Parts and Equipment**
   Readily available Good condition Requires upgrade Needs to be provided
   Remarks _____

C. Treatment System Applicable N/A

1. **Treatment Train** (Check components that apply)
   Metals removal Oil/water separation Bioremediation
   Air stripping Carbon adsorbers
   Filters _____
   Additive (*e.g.*, chelation agent, flocculent) _____
   Others _____
   Good condition Needs Maintenance
   Sampling ports properly marked and functional
   Sampling/maintenance log displayed and up to date
   Equipment properly identified
   Quantity of groundwater treated annually _____
   Quantity of surface water treated annually _____
   Remarks Encrustation noted on valves indicating leakage
   Minor leakage

2.	**Electrical Enclosures and Panels** (properly rated and functional) N/A Good condition Needs Maintenance Remarks_____
3.	**Tanks, Vaults, Storage Vessels** N/A Good condition Proper secondary containment Needs Maintenance Remarks_____ [redacted] OK
4.	**Discharge Structure and Appurtenances** N/A Good condition Needs Maintenance Remarks_____
5.	**Treatment Building(s)** N/A Good condition (esp. roof and doorways) Needs repair Chemicals and equipment properly stored Remarks_____
6.	**Monitoring Wells** (pump and treatment remedy) Properly secured/locked Functioning Routinely sampled Good condition All required wells located Needs Maintenance N/A Remarks_____

XI. OVERALL OBSERVATIONS

A. Implementation of the Remedy

Describe issues and observations relating to whether the remedy is effective and functioning as designed. Begin with a brief statement of what the remedy is to accomplish (i.e., to contain contaminant plume, minimize infiltration and gas emission, etc.).

B. Adequacy of O&M

Describe issues and observations related to the implementation and scope of O&M procedures. In particular, discuss their relationship to the current and long-term protectiveness of the remedy.

Five-Year Review Site Inspection Checklist

(Working document for site inspection. Information may be completed by hand and attached to the Five-Year Review report as supporting documentation of site status. "N/A" refers to "not applicable.")

I. SITE INFORMATION	
Site name: CERCLA WTF / Lime Basins Extraction	**Date of inspection:** April 27, 2010
Location and Region: RMA Region VIII	**EPA ID:** C05210020769
Agency, office, or company leading the five-year review: RVO	**Weather/temperature:**

Remedy Includes: (Check all that apply)

Landfill cover/containment
X Access controls
Institutional controls
X Groundwater pump and treatment
Surface water collection and treatment
X Other__Wastewater/Groundwater Treatment Processes_____

Monitored natural attenuation
X Groundwater containment
X Vertical barrier walls

Attachments: Inspection team roster attached Site map attached

II. INTERVIEWS (Check all that apply)

1. **O&M site manager** _____ _____ _____
   Name Title Date
   Interviewed at site at office by phone Phone no. _____
   Problems, suggestions; Report attached _____

2. **O&M staff** _____ _____ _____
   Name Title Date
   Interviewed at site at office by phone Phone no. _____
   Problems, suggestions; Report attached _____

3. **Local regulatory authorities and response agencies** (i.e., State and Tribal offices, emergency response office, police department, office of public health or environmental health, zoning office, recorder of deeds, or other city and county offices, etc.) Fill in all that apply.

Agency TCHD
Contact Vincent Stewart | EHS | 4/27/10 | 720-322-1525
Name | Title | Date | Phone no.
Problems; suggestions; Report attached

Agency
Contact
Name | Title | Date | Phone no.
Problems; suggestions; Report attached

Agency
Contact
Name | Title | Date | Phone no.
Problems; suggestions; Report attached

Agency
Contact
Name | Title | Date | Phone no.
Problems; suggestions; Report attached

4. **Other interviews** (optional) Report attached.

V. ACCESS AND INSTITUTIONAL CONTROLS Applicable N/A

A. Fencing

1. **Fencing damaged** Location shown on site map Gates secured N/A
Remarks

B. Other Access Restrictions

1. **Signs and other security measures** Location shown on site map N/A
Remarks

C. Institutional Controls (ICs)

1. **Implementation and enforcement**

Site conditions imply ICs not properly implemented	Yes	No	N/A
Site conditions imply ICs not being fully enforced	Yes	No	N/A

Type of monitoring (*e.g.*, self-reporting, drive by) _____
Frequency _____
Responsible party/agency _____
Contact _____ _____ _____ _____
Name Title Date Phone no.

Reporting is up-to-date	Yes	No	N/A
Reports are verified by the lead agency	Yes	No	N/A
Specific requirements in deed or decision documents have been met	Yes	No	N/A
Violations have been reported	Yes	No	N/A

Other problems or suggestions: Report attached

_____
_____
_____
_____

2. **Adequacy** ICs are adequate ICs are inadequate N/A
Remarks _____
_____
_____

D. General

1. **Vandalism/trespassing** Location shown on site map No vandalism evident
Remarks _____
_____

2. **Land use changes on site** N/A
Remarks _____
_____

3. **Land use changes off site** N/A
Remarks _____
_____

VI. GENERAL SITE CONDITIONS

A. Roads Applicable N/A

1. **Roads damaged** Location shown on site map Roads adequate N/A
Remarks _____
_____

B. Other Site Conditions

Remarks _____

VIII. VERTICAL BARRIER WALLS Applicable N/A

1. **Settlement** Location shown on site map Settlement not evident
   Areal extent _____ Depth _____
   Remarks _____

2. **Performance Monitoring** Type of monitoring _____
   Performance not monitored
   Frequency _____ Evidence of breaching
   Head differential _____
   Remarks _____

IX. GROUNDWATER WATER REMEDIES Applicable N/A

A. Groundwater Extraction Wells, Pumps, and Pipelines Applicable N/A

1. **Pumps, Wellhead Plumbing, and Electrical**
   Good condition All required wells properly operating Needs Maintenance N/A
   Remarks Well that was put out of service temporarily for repairs

DW
10

2. **Extraction System Pipelines, Valves, Valve Boxes, and Other Appurtenances**
   Good condition Needs Maintenance
   Remarks Just inside slurry wall, strong smell, good condition

Just inside
LB
DW

3. **Spare Parts and Equipment**
   Readily available Good condition Requires upgrade Needs to be provided
   Remarks _____

C. Treatment System Applicable N/A

1. **Treatment Train** (Check components that apply)
   Metals removal Oil/water separation Bioremediation
   Air stripping Carbon adsorbers
   Filters_____
   Additive (*e.g.*, chelation agent, flocculent)_____
   Others_____
   Good condition Needs Maintenance
   Sampling ports properly marked and functional
   Sampling/maintenance log displayed and up to date X
   Equipment properly identified
   Quantity of groundwater treated annually_____
   Quantity of surface water treated annually_____
   Remarks_____

2. **Electrical Enclosures and Panels** (properly rated and functional)
   N/A Good condition Needs Maintenance
   Remarks_____

3. **Tanks, Vaults, Storage Vessels**
   N/A Good condition Proper secondary containment Needs Maintenance
   Remarks_____

4. **Discharge Structure and Appurtenances**
   N/A Good condition Needs Maintenance
   Remarks_____

5. **Treatment Building(s)**
   N/A Good condition (esp. roof and doorways) Needs repair
   Chemicals and equipment properly stored
   Remarks_____

6. **Monitoring Wells** (pump and treatment remedy)
   Properly secured/locked Functioning Routinely sampled Good condition
   All required wells located Needs Maintenance N/A
   Remarks Monitoring Well downgradient from LB
   Monitoring well down gradient from PW10

36213
36210

XI. OVERALL OBSERVATIONS

A. Implementation of the Remedy

Describe issues and observations relating to whether the remedy is effective and functioning as designed. Begin with a brief statement of what the remedy is to accomplish (i.e., to contain contaminant plume, minimize infiltration and gas emission, etc.).

B. Adequacy of O&M

Describe issues and observations related to the implementation and scope of O&M procedures. In particular, discuss their relationship to the current and long-term protectiveness of the remedy.

Five-Year Review Site Inspection Checklist

(Working document for site inspection. Information may be completed by hand and attached to the Five-Year Review report as supporting documentation of site status. "N/A" refers to "not applicable.")

I. SITE INFORMATION	
Site name: Groundwater Mass Removal System – STF	**Date of inspection:** April 27, 2010
Location and Region: RMA Region VIII	**EPA ID:** C05210020769
Agency, office, or company leading the five-year review: RVO	**Weather/temperature:** Clear, warm

Remedy Includes: (Check all that apply)

- Landfill cover/containment
- X Access controls
- Institutional controls
- X Groundwater pump and treatment
- Surface water collection and treatment
- Other Inspected South Tank Farm Plume Extraction System & Lime Basins ~~was~~ Mass removal system inspected as part of CERCLA Treatment Plant Inspection
- Monitored natural attenuation
- Groundwater containment
- Vertical barrier walls

Attachments: Inspection team roster attached Site map attached

II. INTERVIEWS (Check all that apply)

1. **O&M site manager** Tony Lachance / Rick Beardslee _____ _____
   Name Title Date
   Interviewed (at site) at office by phone Phone no. _____
   Problems, suggestions; Report attached _____

2. **O&M staff** _____ _____ _____
   Name Title Date
   Interviewed at site at office by phone Phone no. _____
   Problems, suggestions; Report attached _____

3. **Local regulatory authorities and response agencies** (i.e., State and Tribal offices, emergency response office, police department, office of public health or environmental health, zoning office, recorder of deeds, or other city and county offices, etc.) Fill in all that apply.

Agency Environmental Protection Agency
Contact Ron Bertram / Greg Hargreaves RPMs
Name Title Date Phone no.
Problems; suggestions; Report attached

Agency
Contact
Name Title Date Phone no.
Problems; suggestions; Report attached

Agency
Contact
Name Title Date Phone no.
Problems; suggestions; Report attached

Agency
Contact
Name Title Date Phone no.
Problems; suggestions; Report attached

4. **Other interviews** (optional) Report attached.

V. ACCESS AND INSTITUTIONAL CONTROLS Applicable N/A

A. Fencing

1. **Fencing damaged** Location shown on site map Gates secured N/A
Remarks

B. Other Access Restrictions

1. **Signs and other security measures** Location shown on site map N/A
Remarks

C. Institutional Controls (ICs)

1. **Implementation and enforcement**

Site conditions imply ICs not properly implemented	Yes	No	N/A
Site conditions imply ICs not being fully enforced	Yes	No	N/A

Type of monitoring (*e.g.*, self-reporting, drive by) _____
Frequency _____
Responsible party/agency RVO
Contact _____ _____ _____ _____
Name Title Date Phone no.

Reporting is up-to-date	Yes	No	N/A
Reports are verified by the lead agency	Yes	No	N/A
Specific requirements in deed or decision documents have been met	Yes	No	N/A
Violations have been reported	Yes	No	N/A

Other problems or suggestions: Report attached

2. **Adequacy** ICs are adequate ICs are inadequate N/A
Remarks Access by public is limited and controlled

D. General

1. **Vandalism/trespassing** Location shown on site map (No vandalism evident)
Remarks _____

2. **Land use changes on site** N/A
Remarks Site is still within NPL

3. **Land use changes off site** (N/A)
Remarks _____

VI. GENERAL SITE CONDITIONS

A. Roads Applicable N/A

1. **Roads damaged** Location shown on site map (Roads adequate) N/A
Remarks _____

B. Other Site Conditions

Remarks _____

IX. GROUNDWATER/SURFACE WATER REMEDIES (Applicable) N/A

A. Groundwater Extraction Wells, Pumps, and Pipelines Applicable N/A

1. **Pumps, Wellhead Plumbing, and Electrical**
   Good condition (All required wells properly operating) Needs Maintenance N/A
   Remarks _____

2. **Extraction System Pipelines, Valves, Valve Boxes, and Other Appurtenances**
   (Good condition) Needs Maintenance
   Remarks _____

3. **Spare Parts and Equipment**
   (Readily available) Good condition Requires upgrade Needs to be provided
   Remarks _____

C. Treatment System Applicable (N/A) Extraction system only

1. **Treatment Train** (Check components that apply)
   Metals removal Oil/water separation Bioremediation
   Air stripping Carbon adsorbers
   Filters _____
   Additive (*e.g.*, chelation agent, flocculent) _____
   Others _____
   Good condition Needs Maintenance
   Sampling ports properly marked and functional
   Sampling/maintenance log displayed and up to date
   Equipment properly identified
   Quantity of groundwater treated annually _____
   Quantity of surface water treated annually _____
   Remarks _____

2. **Electrical Enclosures and Panels** (properly rated and functional)
N/A (Good condition) Needs Maintenance
Remarks

3. **Tanks, Vaults, Storage Vessels**
N/A Good condition Proper secondary containment Needs Maintenance
Remarks Metering building inspected and no spills observed and no animal infestation observed

4. **Discharge Structure and Appurtenances**
N/A Good condition Needs Maintenance
Remarks Did not inspect

5. **Treatment Building(s)**
(N/A) Good condition (esp. roof and doorways) Needs repair
Chemicals and equipment properly stored
Remarks Metering building inspected, and was in clean and neat condition; meters were operating

6. **Monitoring Wells** (pump and treatment remedy)
Properly secured/locked Functioning Routinely sampled Good condition
All required wells located Needs Maintenance N/A
Remarks Inspected wells 01604 and 01685 (both monitoring) wells were in good condition

Other wells were observed and were in good condition General Extraction system area is clean an neat with no vegetation overgrowth. Sample crew was sampling well 01685 and was wearing nitrel gloves, hard hat and boots. Metering building is in good condition on outside Lime Basins Groundwater Mass removal system was inspected as part of Basin A Neck system inspection

~~Basin A~~

XI. OVERALL OBSERVATIONS

A. Implementation of the Remedy

Describe issues and observations relating to whether the remedy is effective and functioning as designed. Begin with a brief statement of what the remedy is to accomplish (i.e., to contain contaminant plume, minimize infiltration and gas emission, etc.).

Inspection consisted of the metering building and selected monitoring wells. the metering building and wells were in acceptable condition

B. Adequacy of O&M

Describe issues and observations related to the implementation and scope of O&M procedures. In particular, discuss their relationship to the current and long-term protectiveness of the remedy.

CDPHE

Five-Year Review Site Inspection Checklist

(Working document for site inspection. Information may be completed by hand and attached to the Five-Year Review report as supporting documentation of site status. "N/A" refers to "not applicable.")

I. SITE INFORMATION	
Site name: CERCLA WTF / Lime Basins Extraction	**Date of inspection:** April 27, 2010
Location and Region: RMA Region VIII	**EPA ID:** C05210020769
Agency, office, or company leading the five-year review: RVO	**Weather/temperature:**

Remedy Includes: (Check all that apply)

Landfill cover/containment
X Access controls
Institutional controls
X Groundwater pump and treatment
Surface water collection and treatment
X Other__Wastewater/Groundwater Treatment Processes_____

Monitored natural attenuation
X Groundwater containment
X Vertical barrier walls

Attachments: Inspection team roster attached Site map attached

II. INTERVIEWS (Check all that apply)

1. **O&M site manager** _____ _____ _____
   Name Title Date
   Interviewed at site at office by phone Phone no. _____
   Problems, suggestions; Report attached _____

2. **O&M staff** _____ _____ _____
   Name Title Date
   Interviewed at site at office by phone Phone no. _____
   Problems, suggestions; Report attached _____

3. **Local regulatory authorities and response agencies** (i.e., State and Tribal offices, emergency response office, police department, office of public health or environmental health, zoning office, recorder of deeds, or other city and county offices, etc.) Fill in all that apply.

Agency CDPHE
Contact Ken Vaglio — Engineer — 4/27/10 — 3 692-3383
Name — Title — Date — Phone no.
Problems; suggestions; Report attached All ok

Agency _____
Contact _____ _____ _____ _____
Name — Title — Date — Phone no.
Problems; suggestions; Report attached _____

Agency _____
Contact _____ _____ _____ _____
Name — Title — Date — Phone no.
Problems; suggestions; Report attached _____

Agency _____
Contact _____ _____ _____ _____
Name — Title — Date — Phone no.
Problems; suggestions; Report attached _____

4. **Other interviews** (optional) Report attached.

V. ACCESS AND INSTITUTIONAL CONTROLS Applicable N/A

A. Fencing

1. **Fencing damaged** Location shown on site map Gates secured N/A
Remarks _____

B. Other Access Restrictions

1. **Signs and other security measures** Location shown on site map N/A
Remarks _____

C. Institutional Controls (ICs)

1. **Implementation and enforcement**

Site conditions imply ICs not properly implemented	Yes	No	N/A
Site conditions imply ICs not being fully enforced	Yes	No	N/A

Type of monitoring (*e.g.*, self-reporting, drive by) _____
Frequency _____
Responsible party/agency _____
Contact _____ _____ _____ _____
Name Title Date Phone no.

Reporting is up-to-date	Yes	No	N/A
Reports are verified by the lead agency	Yes	No	N/A
Specific requirements in deed or decision documents have been met	Yes	No	N/A
Violations have been reported	Yes	No	N/A

Other problems or suggestions: Report attached

_____
_____
_____
_____

2. **Adequacy** ICs are adequate ICs are inadequate N/A
Remarks_____
_____
_____

D. General

1. **Vandalism/trespassing** Location shown on site map No vandalism evident
Remarks_____
_____

2. **Land use changes on site** N/A
Remarks_____
_____

3. **Land use changes off site** N/A
Remarks_____
_____

VI. GENERAL SITE CONDITIONS

A. Roads Applicable N/A

1. **Roads damaged** Location shown on site map Roads adequate N/A
Remarks_____
_____

B. Other Site Conditions

Remarks _____

_____

_____

_____

_____

_____

VIII. VERTICAL BARRIER WALLS Applicable N/A

1. **Settlement** Location shown on site map Settlement not evident
   Areal extent_____ Depth_____
   Remarks_____

2. **Performance Monitoring** Type of monitoring_____
   Performance not monitored
   Frequency_____ Evidence of breaching
   Head differential_____
   Remarks_____

IX. GROUNDWATER WATER REMEDIES Applicable N/A

A. Groundwater Extraction Wells, Pumps, and Pipelines Applicable N/A

1. **Pumps, Wellhead Plumbing, and Electrical**
   Good condition All required wells properly operating Needs Maintenance N/A
   Remarks_____

2. **Extraction System Pipelines, Valves, Valve Boxes, and Other Appurtenances**
   Good condition Needs Maintenance
   Remarks_____

3. **Spare Parts and Equipment**
   Readily available Good condition Requires upgrade Needs to be provided
   Remarks_____

C. Treatment System	Applicable	N/A

1. **Treatment Train** (Check components that apply)
   Metals removal Oil/water separation Bioremediation
   Air stripping Carbon adsorbers
   Filters_____
   Additive (*e.g.*, chelation agent, flocculent)_____
   Others_____
   Good condition Needs Maintenance
   Sampling ports properly marked and functional
   Sampling/maintenance log displayed and up to date
   Equipment properly identified
   Quantity of groundwater treated annually_____
   Quantity of surface water treated annually_____
   Remarks_____

2. **Electrical Enclosures and Panels** (properly rated and functional)
   N/A Good condition Needs Maintenance
   Remarks_____

3. **Tanks, Vaults, Storage Vessels**
   N/A Good condition Proper secondary containment Needs Maintenance
   Remarks_____

4. **Discharge Structure and Appurtenances**
   N/A Good condition Needs Maintenance
   Remarks_____

5. **Treatment Building(s)**
   N/A Good condition (esp. roof and doorways) Needs repair
   Chemicals and equipment properly stored
   Remarks_____

6. **Monitoring Wells** (pump and treatment remedy)
   Properly secured/locked Functioning Routinely sampled Good condition
   All required wells located Needs Maintenance N/A
   Remarks_____

XI. OVERALL OBSERVATIONS

A. Implementation of the Remedy

Describe issues and observations relating to whether the remedy is effective and functioning as designed. Begin with a brief statement of what the remedy is to accomplish (i.e., to contain contaminant plume, minimize infiltration and gas emission, etc.).

B. Adequacy of O&M

Describe issues and observations related to the implementation and scope of O&M procedures. In particular, discuss their relationship to the current and long-term protectiveness of the remedy.

Five-Year Review Site Inspection Checklist

(Working document for site inspection. Information may be completed by hand and attached to the Five-Year Review report as supporting documentation of site status. "N/A" refers to "not applicable.")

I. SITE INFORMATION	
Site name: Groundwater Mass Removal System	**Date of inspection:** April 27, 2010
Location and Region: RMA Region VIII	**EPA ID:** C05210020769
Agency, office, or company leading the five-year review: RVO	**Weather/temperature:**

Remedy Includes: (Check all that apply)

Landfill cover/containment
X Access controls
Institutional controls
X Groundwater pump and treatment
Surface water collection and treatment
Other _____

Monitored natural attenuation
Groundwater containment
Vertical barrier walls

Attachments: Inspection team roster attached Site map attached

II. INTERVIEWS (Check all that apply)

1. **O&M site manager** _____ _____ _____
   Name Title Date
   Interviewed at site at office by phone Phone no. _____
   Problems, suggestions; Report attached _____

2. **O&M staff** _____ _____ _____
   Name Title Date
   Interviewed at site at office by phone Phone no. _____
   Problems, suggestions; Report attached _____

3. **Local regulatory authorities and response agencies** (i.e., State and Tribal offices, emergency response office, police department, office of public health or environmental health, zoning office, recorder of deeds, or other city and county offices, etc.) Fill in all that apply.

Agency TCHD
Contact Vincent Stewart | EHS | 4/27 | 720-322-1525
Name | Title | Date | Phone no.
Problems; suggestions; Report attached None

Agency
Contact
Name | Title | Date | Phone no.
Problems; suggestions; Report attached

Agency
Contact
Name | Title | Date | Phone no.
Problems; suggestions; Report attached

Agency
Contact
Name | Title | Date | Phone no.
Problems; suggestions; Report attached

4. **Other interviews** (optional) Report attached.

V. ACCESS AND INSTITUTIONAL CONTROLS Applicable N/A

A. Fencing

1. **Fencing damaged** Location shown on site map Gates secured N/A
Remarks

B. Other Access Restrictions

1. **Signs and other security measures** Location shown on site map N/A
Remarks

C. Institutional Controls (ICs)

1. **Implementation and enforcement**

Site conditions imply ICs not properly implemented	Yes	No	N/A
Site conditions imply ICs not being fully enforced	Yes	No	N/A

Type of monitoring (*e.g.*, self-reporting, drive by) _____
Frequency _____
Responsible party/agency _____
Contact _____ _____ _____ _____
Name Title Date Phone no.

Reporting is up-to-date	Yes	No	N/A
Reports are verified by the lead agency	Yes	No	N/A
Specific requirements in deed or decision documents have been met	Yes	No	N/A
Violations have been reported	Yes	No	N/A

Other problems or suggestions: Report attached

_____
_____
_____
_____

2. **Adequacy** ICs are adequate ICs are inadequate N/A
Remarks _____
_____
_____

D. General

1. **Vandalism/trespassing** Location shown on site map No vandalism evident
Remarks _____
_____

2. **Land use changes on site** N/A
Remarks _____
_____

3. **Land use changes off site** N/A
Remarks _____
_____

VI. GENERAL SITE CONDITIONS

A. Roads Applicable N/A

1. **Roads damaged** Location shown on site map Roads adequate N/A
Remarks _____
_____

B. Other Site Conditions

Remarks _____

_____

_____

_____

_____

_____

IX. GROUNDWATER WATER REMEDIES Applicable N/A

A. Groundwater Extraction Wells, Pumps, and Pipelines Applicable N/A

1. **Pumps, Wellhead Plumbing, and Electrical**
   Good condition All required wells properly operating Needs Maintenance N/A
   Remarks _____

2. **Extraction System Pipelines, Valves, Valve Boxes, and Other Appurtenances**
   Good condition Needs Maintenance
   Remarks _____

3. **Spare Parts and Equipment**
   Readily available Good condition Requires upgrade Needs to be provided
   Remarks _____

C. Treatment System Applicable N/A

1. **Treatment Train** (Check components that apply)
   Metals removal Oil/water separation Bioremediation
   Air stripping Carbon adsorbers
   Filters _____
   Additive (*e.g.*, chelation agent, flocculent) _____
   Others _____
   Good condition Needs Maintenance
   Sampling ports properly marked and functional
   Sampling/maintenance log displayed and up to date
   Equipment properly identified
   Quantity of groundwater treated annually _____
   Quantity of surface water treated annually _____
   Remarks _____

2. **Electrical Enclosures and Panels** (properly rated and functional)
N/A Good condition Needs Maintenance
Remarks_____

3. **Tanks, Vaults, Storage Vessels**
N/A Good condition Proper secondary containment Needs Maintenance
Remarks_____

4. **Discharge Structure and Appurtenances**
N/A Good condition Needs Maintenance
Remarks_____

5. **Treatment Building(s)**
N/A Good condition (esp. roof and doorways) Needs repair
Chemicals and equipment properly stored
Remarks_____

6. **Monitoring Wells** (pump and treatment remedy)
Properly secured/locked Functioning Routinely sampled Good condition
All required wells located Needs Maintenance N/A
Remarks well 01685

XI. OVERALL OBSERVATIONS

A. Implementation of the Remedy

Describe issues and observations relating to whether the remedy is effective and functioning as designed. Begin with a brief statement of what the remedy is to accomplish (i.e., to contain contaminant plume, minimize infiltration and gas emission, etc.).

B. Adequacy of O&M

Describe issues and observations related to the implementation and scope of O&M procedures. In particular, discuss their relationship to the current and long-term protectiveness of the remedy.

TAB J

BASIN A NECK SYSTEM

Five-Year Review Site Inspection Checklist

(Working document for site inspection. Information may be completed by hand and attached to the Five-Year Review report as supporting documentation of site status. "N/A" refers to "not applicable.")

I. SITE INFORMATION	
Site name: Basin A Neck Treatment System	**Date of inspection:** April 27, 2010
Location and Region: RMA Region VIII	**EPA ID:** C05210020769
Agency, office, or company leading the five-year review: RVO	**Weather/temperature:** Clear, warm

Remedy Includes: (Check all that apply)

- Landfill cover/containment
- X Access controls
- Institutional controls
- X Groundwater pump and treatment
- Surface water collection and treatment
- Other Inspected Basin A Neck Treatment Plant, & Extraction System and Bedrock Ridge extraction System
- Monitored natural attenuation
- X Groundwater containment
- Vertical barrier walls

Attachments: Inspection team roster attached Site map attached

II. INTERVIEWS (Check all that apply)

1. **O&M site manager** Rick Beardslee / Tony Lachance (Name) (Title) 4/27/10 (Date)
   Interviewed (at site) at office by phone Phone no. _____
   Problems, suggestions; Report attached _____

2. **O&M staff** _____ (Name) _____ (Title) _____ (Date)
   Interviewed at site at office by phone Phone no. _____
   Problems, suggestions; Report attached _____

3. **Local regulatory authorities and response agencies** (i.e., State and Tribal offices, emergency response office, police department, office of public health or environmental health, zoning office, recorder of deeds, or other city and county offices, etc.) Fill in all that apply.

Agency Environmental Protection Agency
Contact Ron Bertram (Name) RPM (Title) 4/27/10 (Date) 312-6061 (Phone no.)
Problems; suggestions; Report attached

Agency
Contact (Name) (Title) (Date) (Phone no.)
Problems; suggestions; Report attached

Agency
Contact (Name) (Title) (Date) (Phone no.)
Problems; suggestions; Report attached

Agency
Contact (Name) (Title) (Date) (Phone no.)
Problems; suggestions; Report attached

4. **Other interviews** (optional) Report attached.

V. ACCESS AND INSTITUTIONAL CONTROLS Applicable N/A

A. Fencing

1. **Fencing damaged** Location shown on site map Gates secured N/A
Remarks

B. Other Access Restrictions

1. **Signs and other security measures** Location shown on site map N/A
Remarks

C. Institutional Controls (ICs)

1. **Implementation and enforcement**

Site conditions imply ICs not properly implemented	Yes	No	N/A
Site conditions imply ICs not being fully enforced	Yes	No	N/A

Type of monitoring (*e.g.*, self-reporting, drive by) _____
Frequency _____
Responsible party/agency _____
Contact _____ _____ _____ _____
Name Title Date Phone no.

Reporting is up-to-date	Yes	No	N/A
Reports are verified by the lead agency	Yes	No	N/A
Specific requirements in deed or decision documents have been met	Yes	No	N/A
Violations have been reported	Yes	No	N/A

Other problems or suggestions: Report attached

2. **Adequacy** ICs are adequate ICs are inadequate N/A
Remarks _____

D. General

1. **Vandalism/trespassing** Location shown on site map (No vandalism evident)
Remarks _____

2. **Land use changes on site** N/A
Remarks Outside Army Mainland area

3. **Land use changes off site** (N/A)
Remarks _____

VI. GENERAL SITE CONDITIONS

A. Roads Applicable N/A

1. **Roads damaged** Location shown on site map (Roads adequate) N/A
Remarks _____

B. Other Site Conditions

Remarks _____

IX. GROUNDWATER/SURFACE WATER REMEDIES (Applicable) N/A

A. Groundwater Extraction Wells, Pumps, and Pipelines (Applicable) N/A

1. **Pumps, Wellhead Plumbing, and Electrical**
   Good condition (All required wells properly operating) Needs Maintenance N/A
   Remarks _____

2. **Extraction System Pipelines, Valves, Valve Boxes, and Other Appurtenances**
   (Good condition) Needs Maintenance
   Remarks _____

3. **Spare Parts and Equipment**
   (Readily available) Good condition Requires upgrade Needs to be provided
   Remarks _____

C. Treatment System Applicable N/A

1. **Treatment Train** (Check components that apply)
   Metals removal Oil/water separation Bioremediation
   (Air stripping) (Carbon adsorbers)
   Filters _____
   Additive (*e.g.*, chelation agent, flocculent) _____
   Others _____
   Good condition Needs Maintenance
   Sampling ports properly marked and functional
   Sampling/maintenance log displayed and up to date — O&M Manual available, dated 2008 – operator indicated it was current version
   Equipment properly identified
   Quantity of groundwater treated annually _____
   Quantity of surface water treated annually _____
   Remarks _____

2. **Electrical Enclosures and Panels** (properly rated and functional)
N/A Good condition Needs Maintenance
Remarks

3. **Tanks, Vaults, Storage Vessels**
N/A Good condition Proper secondary containment Needs Maintenance
Remarks

4. **Discharge Structure and Appurtenances**
N/A Good condition Needs Maintenance
Remarks Not inspected

5. **Treatment Building(s)**
N/A Good condition (esp. roof and doorways) Needs repair
Chemicals and equipment properly stored
Remarks treatment building in clean and neat condition, no evidence of recent spills or leaks, no animal infestation

6. **Monitoring Wells** (pump and treatment remedy)
Properly secured/locked Functioning Routinely sampled Good condition
All required wells located Needs Maintenance N/A
Remarks Inspected upgradient monitoring wells 35516 and 35512 at BAN5. Both wells are in good condition with pads, protective casing, inner cap and locks covers in place well tag for 35516 was laying on ground. but inner cap was marked. Extraction system was clean and free of debris and vegetation BAN5 building was starting to be prepared for building upgrade
Also inspected the Bedrock Ridge Extraction System - the extraction system area was clean and free of debris and vegetation
Inspected monitoring well 36567. The well condition is acceptable. Also inspected down gradient well 36566. The well has been covered up to the outer casing lid by soil but does not appear to be damaged.

XI. OVERALL OBSERVATIONS

A. Implementation of the Remedy

Describe issues and observations relating to whether the remedy is effective and functioning as designed. Begin with a brief statement of what the remedy is to accomplish (i.e., to contain contaminant plume, minimize infiltration and gas emission, etc.).

Inspection consisted of visits to the Basin A Neck treatment plant and Basin A Neck and Bedrock Ridge wellfields. The treatment plant and wellfields were in acceptable condition. However some wells only had the well identification on the inner cap and not on the outer casing. The well identification should be put on a permanent part of the well such as the casing. CRII 36566 appears to have been partly buried by soil placement activities in the area, and should be ~~exposed~~ exhumed

B. Adequacy of O&M

Describe issues and observations related to the implementation and scope of O&M procedures. In particular, discuss their relationship to the current and long-term protectiveness of the remedy.

Five-Year Review Site Inspection Checklist

(Working document for site inspection. Information may be completed by hand and attached to the Five-Year Review report as supporting documentation of site status. "N/A" refers to "not applicable.")

I. SITE INFORMATION	
Site name: Basin A Neck Treatment System	**Date of inspection:** April 27, 2010
Location and Region: RMA Region VIII	**EPA ID:** C05210020769
Agency, office, or company leading the five-year review: RVO	**Weather/temperature:**

Remedy Includes: (Check all that apply)

Landfill cover/containment
X Access controls
Institutional controls
X Groundwater pump and treatment
Surface water collection and treatment
Other_____

Monitored natural attenuation
X Groundwater containment
Vertical barrier walls

Attachments: Inspection team roster attached Site map attached

II. INTERVIEWS (Check all that apply)

1. **O&M site manager** _____ _____ _____
   Name Title Date
   Interviewed at site at office by phone Phone no. _____
   Problems, suggestions; Report attached _____

2. **O&M staff** _____ _____ _____
   Name Title Date
   Interviewed at site at office by phone Phone no. _____
   Problems, suggestions; Report attached _____

3. **Local regulatory authorities and response agencies** (i.e., State and Tribal offices, emergency response office, police department, office of public health or environmental health, zoning office, recorder of deeds, or other city and county offices, etc.) Fill in all that apply.

Agency TCHD
Contact Vincent Steward | EHS | 4/27/10 | 720-332-1529
Name | Title | Date | Phone no.
Problems; suggestions; Report attached _____

Agency _____
Contact _____ | _____ | _____ | _____
Name | Title | Date | Phone no.
Problems; suggestions; Report attached _____

Agency _____
Contact _____ | _____ | _____ | _____
Name | Title | Date | Phone no.
Problems; suggestions; Report attached _____

Agency _____
Contact _____ | _____ | _____ | _____
Name | Title | Date | Phone no.
Problems; suggestions; Report attached _____

4. **Other interviews** (optional) Report attached.

V. ACCESS AND INSTITUTIONAL CONTROLS Applicable N/A

A. Fencing

1. **Fencing damaged** Location shown on site map Gates secured N/A
Remarks _____

B. Other Access Restrictions

1. **Signs and other security measures** Location shown on site map N/A
Remarks _____

C. Institutional Controls (ICs)

1. **Implementation and enforcement**

Site conditions imply ICs not properly implemented	Yes	No	N/A
Site conditions imply ICs not being fully enforced	Yes	No	N/A

Type of monitoring (*e.g.*, self-reporting, drive by) _____
Frequency _____
Responsible party/agency _____
Contact _____ _____ _____ _____
Name Title Date Phone no.

Reporting is up-to-date	Yes	No	N/A
Reports are verified by the lead agency	Yes	No	N/A
Specific requirements in deed or decision documents have been met	Yes	No	N/A
Violations have been reported	Yes	No	N/A

Other problems or suggestions: Report attached
_____
_____
_____
_____

2. **Adequacy** ICs are adequate ICs are inadequate N/A
Remarks_____
_____
_____

D. General

1. **Vandalism/trespassing** Location shown on site map No vandalism evident
Remarks_____
_____

2. **Land use changes on site** N/A
Remarks_____
_____

3. **Land use changes off site** N/A
Remarks_____
_____

VI. GENERAL SITE CONDITIONS

A. Roads Applicable N/A

1. **Roads damaged** Location shown on site map Roads adequate N/A
Remarks_____
_____

B. Other Site Conditions

Remarks _____

_____

_____

_____

_____

_____

IX. GROUNDWATER WATER REMEDIES Applicable N/A

A. Groundwater Extraction Wells, Pumps, and Pipelines Applicable N/A

1. **Pumps, Wellhead Plumbing, and Electrical**
   Good condition All required wells properly operating Needs Maintenance N/A
   Remarks_____

2. **Extraction System Pipelines, Valves, Valve Boxes, and Other Appurtenances**
   Good condition Needs Maintenance
   Remarks_____

3. **Spare Parts and Equipment**
   Readily available Good condition Requires upgrade Needs to be provided
   Remarks_____

C. Treatment System Applicable N/A

1. **Treatment Train** (Check components that apply)
   Metals removal Oil/water separation Bioremediation
   Air stripping Carbon adsorbers
   Filters_____
   Additive (*e.g.*, chelation agent, flocculent)_____
   Others_____
   Good condition Needs Maintenance
   Sampling ports properly marked and functional
   Sampling/maintenance log displayed and up to date
   Equipment properly identified
   Quantity of groundwater treated annually_____
   Quantity of surface water treated annually_____
   Remarks_____

2. **Electrical Enclosures and Panels** (properly rated and functional)
N/A Good condition Needs Maintenance
Remarks

3. **Tanks, Vaults, Storage Vessels**
N/A Good condition Proper secondary containment Needs Maintenance
Remarks

4. **Discharge Structure and Appurtenances**
N/A Good condition Needs Maintenance
Remarks

5. **Treatment Building(s)**
N/A Good condition (esp. roof and doorways) Needs repair
Chemicals and equipment properly stored
Remarks

6. **Monitoring Wells** (pump and treatment remedy)
Properly secured/locked Functioning Routinely sampled Good condition
All required wells located Needs Maintenance N/A
Remarks 35516 - Upgradient of system - Tag is missing
35512 - Good Condition - Southeast of Neck

XI. OVERALL OBSERVATIONS

A. Implementation of the Remedy

Describe issues and observations relating to whether the remedy is effective and functioning as designed. Begin with a brief statement of what the remedy is to accomplish (i.e., to contain contaminant plume, minimize infiltration and gas emission, etc.).

B. Adequacy of O&M

Describe issues and observations related to the implementation and scope of O&M procedures. In particular, discuss their relationship to the current and long-term protectiveness of the remedy.

TAB K

LWTS

Five-Year Review Site Inspection Checklist

(Working document for site inspection. Information may be completed by hand and attached to the Five-Year Review report as supporting documentation of site status. "N/A" refers to "not applicable.")

I. SITE INFORMATION	
Site name: Landfill Wastewater Treatment System	**Date of inspection:** April 28, 2010
Location and Region: RMA Region VIII	**EPA ID:** C05210020769
Agency, office, or company leading the five-year review: RVO	**Weather/temperature:** Clear, windy

Remedy Includes: (Check all that apply)

- Landfill cover/containment
- X Access controls
- Institutional controls
- Groundwater pump and treatment
- X Surface water collection and treatment
- X Other___Landfill leachate, stormwater and decontamination wastewater collection and treatment
- Monitored natural attenuation
- Groundwater containment
- Vertical barrier walls

Attachments: Inspection team roster attached Site map attached

II. INTERVIEWS (Check all that apply)

1. **O&M site manager** Rich Beardslee (Name) _____ (Title) 4/28/10 (Date)
   Interviewed (at site) at office by phone Phone no. _____
   Problems, suggestions; Report attached _____

2. **O&M staff** _____ (Name) _____ (Title) _____ (Date)
   Interviewed at site at office by phone Phone no. _____
   Problems, suggestions; Report attached _____

3. **Local regulatory authorities and response agencies** (i.e., State and Tribal offices, emergency response office, police department, office of public health or environmental health, zoning office, recorder of deeds, or other city and county offices, etc.) Fill in all that apply.

Agency Environmental Protection Agency
Contact Ron Bertram (Name) RPM (Title) 4/28/10 (Date) 312-6061 (Phone no.)
Problems; suggestions; Report attached _____

Agency _____
Contact _____ (Name) _____ (Title) _____ (Date) _____ (Phone no.)
Problems; suggestions; Report attached _____

Agency _____
Contact _____ (Name) _____ (Title) _____ (Date) _____ (Phone no.)
Problems; suggestions; Report attached _____

Agency _____
Contact _____ (Name) _____ (Title) _____ (Date) _____ (Phone no.)
Problems; suggestions; Report attached _____

4. **Other interviews** (optional) Report attached.

V. ACCESS AND INSTITUTIONAL CONTROLS Applicable N/A

A. Fencing

1. **Fencing damaged** Location shown on site map Gates secured N/A
Remarks Fencing is in place

B. Other Access Restrictions

1. **Signs and other security measures** Location shown on site map N/A
Remarks _____

C. Institutional Controls (ICs)

1. **Implementation and enforcement**

Site conditions imply ICs not properly implemented	Yes	No	N/A
Site conditions imply ICs not being fully enforced	Yes	No	N/A

Type of monitoring (*e.g.*, self-reporting, drive by) _____
Frequency _____
Responsible party/agency _____
Contact _____ _____ _____ _____
Name Title Date Phone no.

Reporting is up-to-date	Yes	No	N/A
Reports are verified by the lead agency	Yes	No	N/A
Specific requirements in deed or decision documents have been met	Yes	No	N/A
Violations have been reported	Yes	No	N/A

Other problems or suggestions: Report attached

_____
_____
_____
_____

2. **Adequacy** ICs are adequate ICs are inadequate N/A
Remarks_____
_____
_____

D. General

1. **Vandalism/trespassing** Location shown on site map No vandalism evident
Remarks_____
_____

2. **Land use changes on site** N/A
Remarks_____
_____

3. **Land use changes off site** N/A
Remarks_____
_____

VI. GENERAL SITE CONDITIONS

A. Roads Applicable N/A

1. **Roads damaged** Location shown on site map Roads adequate N/A
Remarks_____
_____

B. Other Site Conditions

Remarks _____

IX. GROUNDWATER/SURFACE WATER REMEDIES Applicable N/A

A. Groundwater Extraction Wells, Pumps, and Pipelines Applicable N/A

1. **Pumps, Wellhead Plumbing, and Electrical**
   Good condition All required wells properly operating Needs Maintenance N/A
   Remarks _____

2. **Extraction System Pipelines, Valves, Valve Boxes, and Other Appurtenances**
   Good condition Needs Maintenance
   Remarks _____

3. **Spare Parts and Equipment**
   Readily available Good condition Requires upgrade Needs to be provided
   Remarks _____

C. Treatment System Applicable N/A

1. **Treatment Train** (Check components that apply)
   Metals removal Oil/water separation Bioremediation
   Air stripping Carbon adsorbers
   Filters _____
   Additive (*e.g.*, chelation agent, flocculent) _____
   Others _____
   Good condition Needs Maintenance
   Sampling ports properly marked and functional
   Sampling/maintenance log displayed and up to date O&M Manual in Place dated 1999
   Equipment properly identified identified as most recent version
   Quantity of groundwater treated annually _____
   Quantity of surface water treated annually _____
   Remarks _____

2. **Electrical Enclosures and Panels** (properly rated and functional)
N/A Good condition Needs Maintenance
Remarks

3. **Tanks, Vaults, Storage Vessels**
N/A Good condition Proper secondary containment Needs Maintenance
Remarks

4. **Discharge Structure and Appurtenances**
N/A Good condition Needs Maintenance
Remarks Not inspected

5. **Treatment Building(s)**
N/A Good condition (esp. roof and doorways) Needs repair
Chemicals and equipment properly stored
Remarks CWTS is soon to be dismantled and decommissioned

6. **Monitoring Wells** (pump and treatment remedy)
Properly secured/locked Functioning Routinely sampled Good condition
All required wells located Needs Maintenance N/A
Remarks

D. Monitoring Data NA

1. Monitoring Data
Is routinely submitted on time Is of acceptable quality

2. Monitoring data suggests:
Groundwater plume is effectively contained Contaminant concentrations are declining

XI. OVERALL OBSERVATIONS

A. Implementation of the Remedy

Describe issues and observations relating to whether the remedy is effective and functioning as designed. Begin with a brief statement of what the remedy is to accomplish (i.e., to contain contaminant plume, minimize infiltration and gas emission, etc.).

The inspection included observation of the treatment Plant. The conditions found in the treatment plant were acceptable.

B. Adequacy of O&M

Describe issues and observations related to the implementation and scope of O&M procedures. In particular, discuss their relationship to the current and long-term protectiveness of the remedy.

CDPHE

OSWER No. 9355.7-03B-P

Five-Year Review Site Inspection Checklist

(Working document for site inspection. Information may be completed by hand and attached to the Five-Year Review report as supporting documentation of site status. "N/A" refers to "not applicable.")

I. SITE INFORMATION	
Site name: Landfill Wastewater Treatment System	**Date of inspection:** April 27, 2010
Location and Region: RMA Region VIII	**EPA ID:** C05210020769
Agency, office, or company leading the five-year review: RVO	**Weather/temperature:**

Remedy Includes: (Check all that apply)

Landfill cover/containment
X Access controls
Institutional controls
Groundwater pump and treatment
X Surface water collection and treatment
X Other___Landfill leachate, stormwater and decontamination wastewater collection and treatment

Monitored natural attenuation
Groundwater containment
Vertical barrier walls

Attachments: Inspection team roster attached Site map attached

II. INTERVIEWS (Check all that apply)

1. **O&M site manager** _____ _____ _____
   Name Title Date
   Interviewed at site at office by phone Phone no. _____
   Problems, suggestions; Report attached _____

2. **O&M staff** _____ _____ _____
   Name Title Date
   Interviewed at site at office by phone Phone no. _____
   Problems, suggestions; Report attached _____

3. **Local regulatory authorities and response agencies** (i.e., State and Tribal offices, emergency response office, police department, office of public health or environmental health, zoning office, recorder of deeds, or other city and county offices, etc.) Fill in all that apply.

Agency CDPHE
Contact Ken Vogler — Engineer — 4/27/10 — 303 692-3383
Name — Title — Date — Phone no.
Problems; suggestions; Report attached All OK

Agency _____
Contact _____ _____ _____ _____
Name — Title — Date — Phone no.
Problems; suggestions; Report attached _____

Agency _____
Contact _____ _____ _____ _____
Name — Title — Date — Phone no.
Problems; suggestions; Report attached _____

Agency _____
Contact _____ _____ _____ _____
Name — Title — Date — Phone no.
Problems; suggestions; Report attached _____

4. **Other interviews** (optional) Report attached.

V. ACCESS AND INSTITUTIONAL CONTROLS Applicable N/A

A. Fencing

1. **Fencing damaged** Location shown on site map Gates secured N/A
Remarks _____

B. Other Access Restrictions

1. **Signs and other security measures** Location shown on site map N/A
Remarks _____

C. Institutional Controls (ICs)

1. **Implementation and enforcement**

Site conditions imply ICs not properly implemented	Yes	No	N/A
Site conditions imply ICs not being fully enforced	Yes	No	N/A

Type of monitoring (*e.g.*, self-reporting, drive by) _____
Frequency _____
Responsible party/agency _____
Contact _____ _____ _____ _____
Name Title Date Phone no.

Reporting is up-to-date	Yes	No	N/A
Reports are verified by the lead agency	Yes	No	N/A
Specific requirements in deed or decision documents have been met	Yes	No	N/A
Violations have been reported	Yes	No	N/A

Other problems or suggestions: Report attached
_____
_____
_____
_____

2. **Adequacy** ICs are adequate ICs are inadequate N/A
Remarks_____
_____
_____

D. General

1. **Vandalism/trespassing** Location shown on site map No vandalism evident
Remarks_____
_____

2. **Land use changes on site** N/A
Remarks_____
_____

3. **Land use changes off site** N/A
Remarks_____
_____

VI. GENERAL SITE CONDITIONS

A. Roads Applicable N/A

1. **Roads damaged** Location shown on site map Roads adequate N/A
Remarks_____
_____

B. Other Site Conditions

Remarks _____

_____

_____

_____

_____

_____

IX. SURFACE WATER REMEDIES Applicable N/A

B. Surface Water Collection Structures, Pumps, and Pipelines Applicable N/A

1. **Collection Structures, Pumps, and Electrical**
   Good condition Needs Maintenance
   Remarks_____

2. **Surface Water Collection System Pipelines, Valves, Valve Boxes, and Other Appurtenances**
   Good condition Needs Maintenance
   Remarks_____

3. **Spare Parts and Equipment**
   Readily available Good condition G Requires upgrade Needs to be provided
   Remarks_____

C. Treatment System Applicable N/A

1. **Treatment Train** (Check components that apply)
   Metals removal Oil/water separation Bioremediation
   Air stripping Carbon adsorbers
   Filters_____
   Additive (*e.g.*, chelation agent, flocculent)_____
   Others_____
   Good condition Needs Maintenance
   Sampling ports properly marked and functional
   Sampling/maintenance log displayed and up to date
   Equipment properly identified
   Quantity of groundwater treated annually_____
   Quantity of surface water treated annually_____
   Remarks_____

2.	**Electrical Enclosures and Panels** (properly rated and functional) N/A Good condition Needs Maintenance Remarks_____
3.	**Tanks, Vaults, Storage Vessels** N/A Good condition Proper secondary containment Needs Maintenance Remarks_____
4.	**Discharge Structure and Appurtenances** N/A Good condition Needs Maintenance Remarks_____
5.	**Treatment Building(s)** N/A Good condition (esp. roof and doorways) Needs repair Chemicals and equipment properly stored Remarks_____
6.	**Monitoring Wells** (pump and treatment remedy) Properly secured/locked Functioning Routinely sampled Good condition All required wells located Needs Maintenance N/A Remarks_____

D. Monitoring Data		
1.	Monitoring Data Is routinely submitted on time	Is of acceptable quality
2.	Monitoring data suggests: Groundwater plume is effectively contained	Contaminant concentrations are declining

XI. OVERALL OBSERVATIONS

A. Implementation of the Remedy

Describe issues and observations relating to whether the remedy is effective and functioning as designed. Begin with a brief statement of what the remedy is to accomplish (i.e., to contain contaminant plume, minimize infiltration and gas emission, etc.).

B. Adequacy of O&M

Describe issues and observations related to the implementation and scope of O&M procedures. In particular, discuss their relationship to the current and long-term protectiveness of the remedy.

TCHD
LWTS

Five-Year Review Site Inspection Checklist

(Working document for site inspection. Information may be completed by hand and attached to the Five-Year Review report as supporting documentation of site status. "N/A" refers to "not applicable.")

I. SITE INFORMATION	
Site name: Landfill Wastewater Treatment System	**Date of inspection:** April 27, 2010
Location and Region: RMA Region VIII	**EPA ID:** C05210020769
Agency, office, or company leading the five-year review: RVO	**Weather/temperature:**

Remedy Includes: (Check all that apply)

Landfill cover/containment
X Access controls
Institutional controls
Groundwater pump and treatment
X Surface water collection and treatment
X Other___Landfill leachate, stormwater and decontamination wastewater collection and treatment

Monitored natural attenuation
Groundwater containment
Vertical barrier walls

Attachments: Inspection team roster attached Site map attached

II. INTERVIEWS (Check all that apply)

1. **O&M site manager** _____ _____ _____
   Name Title Date
   Interviewed at site at office by phone Phone no. _____
   Problems, suggestions; Report attached _____

2. **O&M staff** _____ _____ _____
   Name Title Date
   Interviewed at site at office by phone Phone no. _____
   Problems, suggestions; Report attached _____

3. **Local regulatory authorities and response agencies** (i.e., State and Tribal offices, emergency response office, police department, office of public health or environmental health, zoning office, recorder of deeds, or other city and county offices, etc.) Fill in all that apply.

Agency TRI-COUNTY HEALTH DPT
Contact MELOOM MASCARENAZ EMA Field supervisor 5-5-10 480-332 8524
Name Title Date Phone no.
Problems; suggestions; Report attached ALL OK NO COMMENT

Agency _____
Contact _____ _____ _____ _____
Name Title Date Phone no.
Problems; suggestions; Report attached _____

Agency _____
Contact _____ _____ _____ _____
Name Title Date Phone no.
Problems; suggestions; Report attached _____

Agency _____
Contact _____ _____ _____ _____
Name Title Date Phone no.
Problems; suggestions; Report attached _____

4. **Other interviews** (optional) Report attached.

V. ACCESS AND INSTITUTIONAL CONTROLS Applicable N/A

A. Fencing

1. **Fencing damaged** Location shown on site map Gates secured N/A
Remarks _____

B. Other Access Restrictions

1. **Signs and other security measures** Location shown on site map N/A
Remarks _____

C. Institutional Controls (ICs)

1. **Implementation and enforcement**

Site conditions imply ICs not properly implemented	Yes	No	N/A
Site conditions imply ICs not being fully enforced	Yes	No	N/A

Type of monitoring (*e.g.*, self-reporting, drive by) _____
Frequency _____
Responsible party/agency _____
Contact _____ _____ _____ _____
Name Title Date Phone no.

Reporting is up-to-date	Yes	No	N/A
Reports are verified by the lead agency	Yes	No	N/A
Specific requirements in deed or decision documents have been met	Yes	No	N/A
Violations have been reported	Yes	No	N/A

Other problems or suggestions: Report attached
_____
_____
_____
_____

2. **Adequacy** ICs are adequate ICs are inadequate N/A
Remarks_____
_____
_____

D. General

1. **Vandalism/trespassing** Location shown on site map No vandalism evident
Remarks_____
_____

2. **Land use changes on site** N/A
Remarks_____
_____

3. **Land use changes off site** N/A
Remarks_____
_____

VI. GENERAL SITE CONDITIONS

A. Roads Applicable N/A

1. **Roads damaged** Location shown on site map Roads adequate N/A
Remarks_____
_____

B. Other Site Conditions

Remarks _____

_____

_____

_____

_____

_____

IX. SURFACE WATER REMEDIES Applicable N/A

B. Surface Water Collection Structures, Pumps, and Pipelines Applicable N/A

1. **Collection Structures, Pumps, and Electrical**
   Good condition Needs Maintenance
   Remarks_____
   _____

2. **Surface Water Collection System Pipelines, Valves, Valve Boxes, and Other Appurtenances**
   Good condition Needs Maintenance
   Remarks_____
   _____

3. **Spare Parts and Equipment**
   Readily available Good condition G Requires upgrade Needs to be provided
   Remarks_____
   _____

C. Treatment System Applicable N/A

1. **Treatment Train** (Check components that apply)
   Metals removal Oil/water separation Bioremediation
   Air stripping Carbon adsorbers
   Filters_____
   Additive (*e.g.*, chelation agent, flocculent)_____
   Others_____
   Good condition Needs Maintenance
   Sampling ports properly marked and functional
   Sampling/maintenance log displayed and up to date
   Equipment properly identified
   Quantity of groundwater treated annually_____
   Quantity of surface water treated annually_____
   Remarks_____
   _____

2.	**Electrical Enclosures and Panels** (properly rated and functional) N/A Good condition Needs Maintenance Remarks_____
3.	**Tanks, Vaults, Storage Vessels** N/A Good condition Proper secondary containment Needs Maintenance Remarks_____
4.	**Discharge Structure and Appurtenances** N/A Good condition Needs Maintenance Remarks_____
5.	**Treatment Building(s)** N/A Good condition (esp. roof and doorways) Needs repair Chemicals and equipment properly stored Remarks_____
6.	**Monitoring Wells** (pump and treatment remedy) Properly secured/locked Functioning Routinely sampled Good condition All required wells located Needs Maintenance N/A Remarks_____

D. Monitoring Data		
1.	Monitoring Data Is routinely submitted on time	Is of acceptable quality
2.	Monitoring data suggests: Groundwater plume is effectively contained	Contaminant concentrations are declining

XI. OVERALL OBSERVATIONS

A. Implementation of the Remedy

Describe issues and observations relating to whether the remedy is effective and functioning as designed. Begin with a brief statement of what the remedy is to accomplish (i.e., to contain contaminant plume, minimize infiltration and gas emission, etc.).

B. Adequacy of O&M

Describe issues and observations related to the implementation and scope of O&M procedures. In particular, discuss their relationship to the current and long-term protectiveness of the remedy.

TAB L

NORTH BOUNDARY CONTAINMENT SYSTEM

Five-Year Review Site Inspection Checklist

(Working document for site inspection. Information may be completed by hand and attached to the Five-Year Review report as supporting documentation of site status. "N/A" refers to "not applicable.")

I. SITE INFORMATION	
Site name: North Boundary System	**Date of inspection:** April 27th, 2010
Location and Region: RMA Region VIII	**EPA ID:** C05210020769
Agency, office, or company leading the five-year review: RVO	**Weather/temperature:** Clear, warm

Remedy Includes: (Check all that apply)

- Landfill cover/containment
- ✗ Access controls
- Institutional controls
- ✗ Groundwater pump and treatment
- Surface water collection and treatment
- Other _____
- Monitored natural attenuation
- ✗ Groundwater containment
- ✗ Vertical barrier walls

Attachments: Inspection team roster attached Site map attached

II. INTERVIEWS (Check all that apply)

1. **O&M site manager** Tony Lachance / Rick Beardslee _____ 7/27/10
   Name Title Date
   Interviewed (at site) at office by phone Phone no. _____
   Problems, suggestions; Report attached _____

2. **O&M staff** _____ _____ _____
   Name Title Date
   Interviewed at site at office by phone Phone no. _____
   Problems, suggestions; Report attached _____

3. **Local regulatory authorities and response agencies** (i.e., State and Tribal offices, emergency response office, police department, office of public health or environmental health, zoning office, recorder of deeds, or other city and county offices, etc.) Fill in all that apply.

Agency Environmental Protection Agency
Contact Ron Bertram (Name) RPM (Title) 4/27/10 (Date) 312-6061 (Phone no.)
Problems; suggestions; Report attached _____

Agency _____
Contact _____ (Name) _____ (Title) _____ (Date) _____ (Phone no.)
Problems; suggestions; Report attached _____

Agency _____
Contact _____ (Name) _____ (Title) _____ (Date) _____ (Phone no.)
Problems; suggestions; Report attached _____

Agency _____
Contact _____ (Name) _____ (Title) _____ (Date) _____ (Phone no.)
Problems; suggestions; Report attached _____

4. **Other interviews** (optional) Report attached.

V. ACCESS AND INSTITUTIONAL CONTROLS Applicable N/A

A. Fencing

1. **Fencing damaged** Location shown on site map Gates secured (N/A)
Remarks _____

B. Other Access Restrictions

1. **Signs and other security measures** Location shown on site map (N/A)
Remarks _____

C. Institutional Controls (ICs)

1. **Implementation and enforcement**

Site conditions imply ICs not properly implemented	Yes	No	N/A
Site conditions imply ICs not being fully enforced	Yes	No	N/A

Type of monitoring (*e.g.*, self-reporting, drive by) _____
Frequency _____
Responsible party/agency _____
Contact _____ _____ _____ _____
Name Title Date Phone no.

Reporting is up-to-date	Yes	No	N/A
Reports are verified by the lead agency	Yes	No	N/A
Specific requirements in deed or decision documents have been met	Yes	No	N/A
Violations have been reported	Yes	No	N/A

Other problems or suggestions: Report attached

2. **Adequacy** ICs are adequate ICs are inadequate N/A
Remarks _____

D. General

1. **Vandalism/trespassing** Location shown on site map (No vandalism evident)
Remarks _____

2. **Land use changes on site** N/A
Remarks Outsick Army Mainhained Area

3. **Land use changes off site** (N/A)
Remarks _____

VI. GENERAL SITE CONDITIONS

A. Roads Applicable N/A

1. **Roads damaged** Location shown on site map (Roads adequate) N/A
Remarks _____

B. Other Site Conditions

Remarks _____

IX. GROUNDWATER WATER REMEDIES (Applicable) N/A

A. Groundwater Extraction Wells, Pumps, and Pipelines (Applicable) N/A

1. **Pumps, Wellhead Plumbing, and Electrical**
   Good condition (All required wells properly operating) Needs Maintenance N/A
   Remarks Some Extraction well vaults are closed to weather conditions but other vaults are open - partly to keep animal nesting to a minimum

2. **Extraction System Pipelines, Valves, Valve Boxes, and Other Appurtenances**
   (Good condition) Needs Maintenance
   Remarks _____

3. **Spare Parts and Equipment**
   (Readily available) Good condition Requires upgrade Needs to be provided
   Remarks _____

C. Treatment System (Applicable) N/A

1. **Treatment Train** (Check components that apply)
   Metals removal Oil/water separation Bioremediation
   Air stripping (Carbon adsorbers) (UV oxidation)
   Filters _____
   Additive (*e.g.*, chelation agent, flocculent) _____
   Others _____
   (Good condition) Needs Maintenance
   Sampling ports properly marked and functional
   Sampling/maintenance log displayed and up to date O&M Manual in place dated 2001
   Equipment properly identified version is most recent per T. Cochran
   Quantity of groundwater treated annually _____
   Quantity of surface water treated annually _____
   Remarks _____

2. **Electrical Enclosures and Panels** (properly rated and functional)
N/A (Good condition) Needs Maintenance
Remarks

3. **Tanks, Vaults, Storage Vessels**
N/A (Good condition) Proper secondary containment Needs Maintenance
Remarks

4. **Discharge Structure and Appurtenances**
N/A Good condition Needs Maintenance
Remarks Not inspected

5. **Treatment Building(s)**
N/A (Good condition (esp. roof and doorways)) Needs repair
Chemicals and equipment properly stored
Remarks Treatment building clear, free of debris. Inspection of effluent sample port. noted possible organic growth on bottom of tubing - recommend replacement

6. **Monitoring Wells** (pump and treatment remedy)
Properly secured/locked Functioning Routinely sampled Good condition
(All required wells located) Needs Maintenance N/A
Remarks Inspected upgradient monitoring well 24101. There is no protective casing on well. well cap was in place and well tag was intact. Inspected well 23119 (upgradient monitoring well) found protective casing, pad, cap and outer cover to be in acceptable condition well number is on inside of well cap.
Extraction well area is free of debris and vegetation is under control.

XI. OVERALL OBSERVATIONS

A. Implementation of the Remedy

Describe issues and observations relating to whether the remedy is effective and functioning as designed. Begin with a brief statement of what the remedy is to accomplish (i.e., to contain contaminant plume, minimize infiltration and gas emission, etc.).

The inspection for the NBCS involved observation of the treatment Plant and upgradient (selected) performance water quality wells.

Issues: Performance water quality well 2405 was found to be destroyed. The well was also found to be in the same condition during the 2005 Five year review. This observation suggests that routine well inspection and repair is not being conducted in an effective manner.

B. Adequacy of O&M

Describe issues and observations related to the implementation and scope of O&M procedures. In particular, discuss their relationship to the current and long-term protectiveness of the remedy.

CDPHE

OSWER No. 9355.7-03B-P

Five-Year Review Site Inspection Checklist

(Working document for site inspection. Information may be completed by hand and attached to the Five-Year Review report as supporting documentation of site status. "N/A" refers to "not applicable.")

I. SITE INFORMATION	
Site name: North Boundary Treatment System	**Date of inspection:** April 27, 2010
Location and Region: RMA Region VIII	**EPA ID:** C05210020769
Agency, office, or company leading the five-year review: RVO	**Weather/temperature:**

Remedy Includes: (Check all that apply)

Landfill cover/containment
X Access controls
Institutional controls
X Groundwater pump and treatment
Surface water collection and treatment
Other _____

Monitored natural attenuation
X Groundwater containment
Vertical barrier walls

Attachments: Inspection team roster attached Site map attached

II. INTERVIEWS (Check all that apply)

1. **O&M site manager** _____ _____ _____
   Name Title Date
   Interviewed at site at office by phone Phone no. _____
   Problems, suggestions; Report attached _____

2. **O&M staff** _____ _____ _____
   Name Title Date
   Interviewed at site at office by phone Phone no. _____
   Problems, suggestions; Report attached _____

3. **Local regulatory authorities and response agencies** (i.e., State and Tribal offices, emergency response office, police department, office of public health or environmental health, zoning office, recorder of deeds, or other city and county offices, etc.) Fill in all that apply.

Agency CDPHE
Contact Ken Vogler (Name) Engineer (Title) 4/27/10 (Date) 3692-3383 (Phone no.)
Problems; suggestions; Report attached All OK

Agency _____
Contact _____ (Name) _____ (Title) _____ (Date) _____ (Phone no.)
Problems; suggestions; Report attached _____

Agency _____
Contact _____ (Name) _____ (Title) _____ (Date) _____ (Phone no.)
Problems; suggestions; Report attached _____

Agency _____
Contact _____ (Name) _____ (Title) _____ (Date) _____ (Phone no.)
Problems; suggestions; Report attached _____

4. **Other interviews** (optional) Report attached.

V. ACCESS AND INSTITUTIONAL CONTROLS Applicable N/A

A. Fencing

1. **Fencing damaged** Location shown on site map Gates secured N/A
Remarks _____

B. Other Access Restrictions

1. **Signs and other security measures** Location shown on site map N/A
Remarks _____

C. Institutional Controls (ICs)

1. **Implementation and enforcement**

Site conditions imply ICs not properly implemented	Yes	No	N/A
Site conditions imply ICs not being fully enforced	Yes	No	N/A

Type of monitoring (*e.g.*, self-reporting, drive by) _____
Frequency _____
Responsible party/agency _____
Contact _____ _____ _____ _____
Name Title Date Phone no.

Reporting is up-to-date	Yes	No	N/A
Reports are verified by the lead agency	Yes	No	N/A
Specific requirements in deed or decision documents have been met	Yes	No	N/A
Violations have been reported	Yes	No	N/A

Other problems or suggestions: Report attached
_____
_____
_____
_____

2. **Adequacy** ICs are adequate ICs are inadequate N/A
Remarks_____
_____
_____

D. General

1. **Vandalism/trespassing** Location shown on site map No vandalism evident
Remarks_____
_____

2. **Land use changes on site** N/A
Remarks_____
_____

3. **Land use changes off site** N/A
Remarks_____
_____

VI. GENERAL SITE CONDITIONS

A. Roads Applicable N/A

1. **Roads damaged** Location shown on site map Roads adequate N/A
Remarks_____
_____

B. Other Site Conditions

Remarks _____

_____

_____

_____

_____

_____

IX. GROUNDWATER WATER REMEDIES Applicable N/A

A. Groundwater Extraction Wells, Pumps, and Pipelines Applicable N/A

1. **Pumps, Wellhead Plumbing, and Electrical**
   Good condition All required wells properly operating Needs Maintenance N/A
   Remarks_____

2. **Extraction System Pipelines, Valves, Valve Boxes, and Other Appurtenances**
   Good condition Needs Maintenance
   Remarks_____

3. **Spare Parts and Equipment**
   Readily available Good condition Requires upgrade Needs to be provided
   Remarks_____

C. Treatment System Applicable N/A

1. **Treatment Train** (Check components that apply)
   Metals removal Oil/water separation Bioremediation
   Air stripping Carbon adsorbers
   Filters_____
   Additive (*e.g.*, chelation agent, flocculent)_____
   Others_____
   Good condition Needs Maintenance
   Sampling ports properly marked and functional
   Sampling/maintenance log displayed and up to date
   Equipment properly identified
   Quantity of groundwater treated annually_____
   Quantity of surface water treated annually_____
   Remarks_____

2.	**Electrical Enclosures and Panels** (properly rated and functional) N/A Good condition Needs Maintenance Remarks_____
3.	**Tanks, Vaults, Storage Vessels** N/A Good condition Proper secondary containment Needs Maintenance Remarks_____
4.	**Discharge Structure and Appurtenances** N/A Good condition Needs Maintenance Remarks_____
5.	**Treatment Building(s)** N/A Good condition (esp. roof and doorways) Needs repair Chemicals and equipment properly stored Remarks_____
6.	**Monitoring Wells** (pump and treatment remedy) Properly secured/locked Functioning Routinely sampled Good condition All required wells located Needs Maintenance N/A Remarks_____

XI. OVERALL OBSERVATIONS

A. Implementation of the Remedy

Describe issues and observations relating to whether the remedy is effective and functioning as designed. Begin with a brief statement of what the remedy is to accomplish (i.e., to contain contaminant plume, minimize infiltration and gas emission, etc.).

B. Adequacy of O&M

Describe issues and observations related to the implementation and scope of O&M procedures. In particular, discuss their relationship to the current and long-term protectiveness of the remedy.

TCHD
NB

Five-Year Review Site Inspection Checklist

(Working document for site inspection. Information may be completed by hand and attached to the Five-Year Review report as supporting documentation of site status. "N/A" refers to "not applicable.")

I. SITE INFORMATION	
Site name: North Boundary Treatment System	**Date of inspection:** April 27, 2010
Location and Region: RMA Region VIII	**EPA ID:** C05210020769
Agency, office, or company leading the five-year review: RVO	**Weather/temperature:**

Remedy Includes: (Check all that apply)

- Landfill cover/containment
- X Access controls
- Institutional controls
- X Groundwater pump and treatment
- Surface water collection and treatment
- Other _____
- Monitored natural attenuation
- X Groundwater containment
- Vertical barrier walls

Attachments: Inspection team roster attached Site map attached

II. INTERVIEWS (Check all that apply)

1. **O&M site manager** _____ _____ _____
   Name Title Date
   Interviewed at site at office by phone Phone no. _____
   Problems, suggestions; Report attached _____

2. **O&M staff** _____ _____ _____
   Name Title Date
   Interviewed at site at office by phone Phone no. _____
   Problems, suggestions; Report attached _____

WELL 24101

3. **Local regulatory authorities and response agencies** (i.e., State and Tribal offices, emergency response office, police department, office of public health or environmental health, zoning office, recorder of deeds, or other city and county offices, etc.) Fill in all that apply.

Agency TRICOUNTY HEALTH DPT
Contact MELOOH MASCALENAZ RMA FIELD SUPERVISOR 5/5/0 720.322.1524
Name Title Date Phone no.
Problems; suggestions; Report attached ALL OK NO COMMENT

Agency _____
Contact _____
Name Title Date Phone no.
Problems; suggestions; Report attached _____

Agency _____
Contact _____
Name Title Date Phone no.
Problems; suggestions; Report attached _____

Agency _____
Contact _____
Name Title Date Phone no.
Problems; suggestions; Report attached _____

4. **Other interviews** (optional) Report attached.

V. ACCESS AND INSTITUTIONAL CONTROLS Applicable N/A

A. Fencing

1. **Fencing damaged** Location shown on site map Gates secured N/A
Remarks _____

B. Other Access Restrictions

1. **Signs and other security measures** Location shown on site map N/A
Remarks _____

C. Institutional Controls (ICs)

1. **Implementation and enforcement**

Site conditions imply ICs not properly implemented	Yes	No	N/A
Site conditions imply ICs not being fully enforced	Yes	No	N/A

Type of monitoring (*e.g.*, self-reporting, drive by) _____
Frequency _____
Responsible party/agency _____
Contact _____ _____ _____ _____
Name Title Date Phone no.

Reporting is up-to-date	Yes	No	N/A
Reports are verified by the lead agency	Yes	No	N/A
Specific requirements in deed or decision documents have been met	Yes	No	N/A
Violations have been reported	Yes	No	N/A

Other problems or suggestions: Report attached

_____
_____
_____
_____

2. **Adequacy** ICs are adequate ICs are inadequate N/A
Remarks _____
_____
_____

D. General

1. **Vandalism/trespassing** Location shown on site map No vandalism evident
Remarks _____
_____

2. **Land use changes on site** N/A
Remarks _____
_____

3. **Land use changes off site** N/A
Remarks _____
_____

VI. GENERAL SITE CONDITIONS

A. Roads Applicable N/A

1. **Roads damaged** Location shown on site map Roads adequate N/A
Remarks _____
_____

B. Other Site Conditions

Remarks _____

_____

_____

_____

_____

_____

IX. GROUNDWATER WATER REMEDIES Applicable N/A

A. Groundwater Extraction Wells, Pumps, and Pipelines Applicable N/A

1. **Pumps, Wellhead Plumbing, and Electrical**
   Good condition All required wells properly operating Needs Maintenance N/A
   Remarks_____

2. **Extraction System Pipelines, Valves, Valve Boxes, and Other Appurtenances**
   Good condition Needs Maintenance
   Remarks_____

3. **Spare Parts and Equipment**
   Readily available Good condition Requires upgrade Needs to be provided
   Remarks_____

C. Treatment System Applicable N/A

1. **Treatment Train** (Check components that apply)
   Metals removal Oil/water separation Bioremediation
   Air stripping Carbon adsorbers
   Filters_____
   Additive (*e.g.*, chelation agent, flocculent)_____
   Others_____
   Good condition Needs Maintenance
   Sampling ports properly marked and functional
   Sampling/maintenance log displayed and up to date
   Equipment properly identified
   Quantity of groundwater treated annually_____
   Quantity of surface water treated annually_____
   Remarks_____

2.	**Electrical Enclosures and Panels** (properly rated and functional) N/A Good condition Needs Maintenance Remarks_____
3.	**Tanks, Vaults, Storage Vessels** N/A Good condition Proper secondary containment Needs Maintenance Remarks_____
4.	**Discharge Structure and Appurtenances** N/A Good condition Needs Maintenance Remarks_____
5.	**Treatment Building(s)** N/A Good condition (esp. roof and doorways) Needs repair Chemicals and equipment properly stored Remarks_____
6.	**Monitoring Wells** (pump and treatment remedy) Properly secured/locked Functioning Routinely sampled Good condition All required wells located Needs Maintenance N/A Remarks_____

XI. OVERALL OBSERVATIONS

A. Implementation of the Remedy

Describe issues and observations relating to whether the remedy is effective and functioning as designed. Begin with a brief statement of what the remedy is to accomplish (i.e., to contain contaminant plume, minimize infiltration and gas emission, etc.).

B. Adequacy of O&M

Describe issues and observations related to the implementation and scope of O&M procedures. In particular, discuss their relationship to the current and long-term protectiveness of the remedy.

TAB M

NORTHWEST BOUNDARY CONTAINMENT SYSTEM

Five-Year Review Site Inspection Checklist

(Working document for site inspection. Information may be completed by hand and attached to the Five-Year Review report as supporting documentation of site status. "N/A" refers to "not applicable.")

I. SITE INFORMATION	
Site name: Northwest Boundary Treatment System	**Date of inspection:** April 27, 2010
Location and Region: RMA Region VIII	**EPA ID:** C05210020769
Agency, office, or company leading the five-year review: RVO	**Weather/temperature:** Clear, warm

Remedy Includes: (Check all that apply)

- Landfill cover/containment
- X Access controls
- Institutional controls
- X Groundwater pump and treatment
- Surface water collection and treatment
- Other _____
- Monitored natural attenuation
- X Groundwater containment
- Vertical barrier walls

Attachments: Inspection team roster attached Site map attached

II. INTERVIEWS (Check all that apply)

1. **O&M site manager** Tony Lackarce / Rick Bandslee (Name) _____ (Title) 4/27/10 (Date)
   Interviewed (at site) at office by phone Phone no. _____
   Problems, suggestions; Report attached _____

2. **O&M staff** _____ (Name) _____ (Title) _____ (Date)
   Interviewed at site at office by phone Phone no. _____
   Problems, suggestions; Report attached _____

3. **Local regulatory authorities and response agencies** (i.e., State and Tribal offices, emergency response office, police department, office of public health or environmental health, zoning office, recorder of deeds, or other city and county offices, etc.) Fill in all that apply.

Agency Environmental Protection Agency
Contact Ron Bertram (Name) RPM (Title) 4/27/10 (Date) 312-6061 (Phone no.)
Problems; suggestions; Report attached _____

Agency _____
Contact _____ (Name) _____ (Title) _____ (Date) _____ (Phone no.)
Problems; suggestions; Report attached _____

Agency _____
Contact _____ (Name) _____ (Title) _____ (Date) _____ (Phone no.)
Problems; suggestions; Report attached _____

Agency _____
Contact _____ (Name) _____ (Title) _____ (Date) _____ (Phone no.)
Problems; suggestions; Report attached _____

4. **Other interviews** (optional) Report attached.

V. ACCESS AND INSTITUTIONAL CONTROLS Applicable N/A

A. Fencing

1. **Fencing damaged** Location shown on site map Gates secured (N/A)
Remarks _____

B. Other Access Restrictions

1. **Signs and other security measures** Location shown on site map (N/A)
Remarks _____

C. Institutional Controls (ICs)

1. **Implementation and enforcement**

Site conditions imply ICs not properly implemented	Yes	No	N/A
Site conditions imply ICs not being fully enforced	Yes	No	N/A

Type of monitoring (*e.g.*, self-reporting, drive by) _____
Frequency _____
Responsible party/agency _____
Contact _____ _____ _____ _____
Name Title Date Phone no.

Reporting is up-to-date	Yes	No	N/A
Reports are verified by the lead agency	Yes	No	N/A
Specific requirements in deed or decision documents have been met	Yes	No	N/A
Violations have been reported	Yes	No	N/A

Other problems or suggestions: Report attached

2. **Adequacy** ICs are adequate ICs are inadequate N/A
Remarks _____

D. General

1. **Vandalism/trespassing** Location shown on site map (No vandalism evident)
Remarks _____

2. **Land use changes on site** N/A
Remarks Outside Army Maintained Area

3. **Land use changes off site** (N/A)
Remarks _____

VI. GENERAL SITE CONDITIONS

A. Roads Applicable N/A

1. **Roads damaged** Location shown on site map (Roads adequate) N/A
Remarks _____

B. Other Site Conditions

Remarks _____

IX. GROUNDWATER/SURFACE WATER REMEDIES (Applicable) N/A

A. Groundwater Extraction Wells, Pumps, and Pipelines (Applicable) N/A

1. **Pumps, Wellhead Plumbing, and Electrical**
   Good condition (All required wells properly operating) Needs Maintenance N/A
   Remarks _____

2. **Extraction System Pipelines, Valves, Valve Boxes, and Other Appurtenances**
   Good condition Needs Maintenance
   Remarks All Valve Vaults for extraction and recharge wells are in good condition with doors closed but not locked

3. **Spare Parts and Equipment**
   (Readily available) Good condition Requires upgrade Needs to be provided
   Remarks _____

C. Treatment System (Applicable) N/A

1. **Treatment Train** (Check components that apply)
   Metals removal Oil/water separation Bioremediation
   Air stripping (Carbon adsorbers)
   Filters _____
   Additive (*e.g.*, chelation agent, flocculent) _____
   Others _____
   Good condition Needs Maintenance
   Sampling ports properly marked and functional
   Sampling/maintenance log displayed and up to date O&M Manual in place dated 2002 and correct version per T. Lackaver
   Equipment properly identified
   Quantity of groundwater treated annually _____
   Quantity of surface water treated annually _____
   Remarks _____

2. **Electrical Enclosures and Panels** (properly rated and functional)
N/A Good condition Needs Maintenance
Remarks

3. **Tanks, Vaults, Storage Vessels**
N/A Good condition Proper secondary containment Needs Maintenance
Remarks

4. **Discharge Structure and Appurtenances**
N/A Good condition Needs Maintenance
Remarks

5. **Treatment Building(s)**
N/A Good condition (esp. roof and doorways) Needs repair
Chemicals and equipment properly stored
Remarks Treatment building clean, no spills or leaks observed Free of debris and no animal infestation

6. **Monitoring Wells** (pump and treatment remedy)
Properly secured/locked Functioning Routinely sampled Good condition
All required wells located Needs Maintenance N/A
Remarks Inspected upgradient monitoring well 22053. Well was in acceptable condition with well pad, protective casing and inner cap and outer well cover in place Well ID was written on inside of inner casing cap Inspected upgradient monitoring well 22081 and well was in good condition with pad, protective casing, inner cap and cover in place. Well ID was painted on casing. Extraction wellfield is in clean condition and free of debris and vegetation

2. **Electrical Enclosures and Panels** (properly rated and functional)
   N/A Good condition Needs Maintenance
   Remarks_____

3. **Tanks, Vaults, Storage Vessels**
   N/A Good condition Proper secondary containment Needs Maintenance
   Remarks_____

4. **Discharge Structure and Appurtenances**
   N/A Good condition Needs Maintenance
   Remarks_____

5. **Treatment Building(s)**
   N/A Good condition (esp. roof and doorways) Needs repair
   Chemicals and equipment properly stored
   Remarks_____

6. **Monitoring Wells** (pump and treatment remedy)
   Properly secured/locked Functioning Routinely sampled Good condition
   All required wells located Needs Maintenance N/A
   Remarks_____

XI. OVERALL OBSERVATIONS

A. Implementation of the Remedy

Describe issues and observations relating to whether the remedy is effective and functioning as designed. Begin with a brief statement of what the remedy is to accomplish (i.e., to contain contaminant plume, minimize infiltration and gas emission, etc.).

Inspected the NWBCS treatment Plant and Selected upgradient performance monitoring wells the treatment plant was found to be in acceptable condition. the wells were also in acceptable condition, However one well had the well identification on the inside of the well cap. the well identification should also be on the casing or other permanent part of the well.

B. Adequacy of O&M

Describe issues and observations related to the implementation and scope of O&M procedures. In particular, discuss their relationship to the current and long-term protectiveness of the remedy.

CDPHE

Five-Year Review Site Inspection Checklist

(Working document for site inspection. Information may be completed by hand and attached to the Five-Year Review report as supporting documentation of site status. "N/A" refers to "not applicable.")

I. SITE INFORMATION	
Site name: Northwest Boundary Treatment System	**Date of inspection:** April 27, 2010
Location and Region: RMA Region VIII	**EPA ID:** C05210020769
Agency, office, or company leading the five-year review: RVO	**Weather/temperature:**
Remedy Includes: (Check all that apply) Landfill cover/containment X Access controls Institutional controls X Groundwater pump and treatment Surface water collection and treatment Other _____ Monitored natural attenuation X Groundwater containment Vertical barrier walls	
Attachments: Inspection team roster attached Site map attached	
II. INTERVIEWS (Check all that apply)	
1. **O&M site manager** _____ _____ _____ Name Title Date Interviewed at site at office by phone Phone no. _____ Problems, suggestions; Report attached _____	
2. **O&M staff** _____ _____ _____ Name Title Date Interviewed at site at office by phone Phone no. _____ Problems, suggestions; Report attached _____	

3. **Local regulatory authorities and response agencies** (i.e., State and Tribal offices, emergency response office, police department, office of public health or environmental health, zoning office, recorder of deeds, or other city and county offices, etc.) Fill in all that apply.

Agency CDPHE
Contact Ken Vogler — Engineer — 4/27/10 — 3 (192-3383)
Name — Title — Date — Phone no.
Problems; suggestions; Report attached All OK

Agency _____
Contact _____ — _____ — _____ — _____
Name — Title — Date — Phone no.
Problems; suggestions; Report attached _____

Agency _____
Contact _____ — _____ — _____ — _____
Name — Title — Date — Phone no.
Problems; suggestions; Report attached _____

Agency _____
Contact _____ — _____ — _____ — _____
Name — Title — Date — Phone no.
Problems; suggestions; Report attached _____

4. **Other interviews** (optional) Report attached.

V. ACCESS AND INSTITUTIONAL CONTROLS Applicable N/A

A. Fencing

1. **Fencing damaged** Location shown on site map Gates secured N/A
Remarks _____

B. Other Access Restrictions

1. **Signs and other security measures** Location shown on site map N/A
Remarks _____

C. Institutional Controls (ICs)

1. **Implementation and enforcement**

Site conditions imply ICs not properly implemented	Yes	No	N/A
Site conditions imply ICs not being fully enforced	Yes	No	N/A

Type of monitoring (*e.g.*, self-reporting, drive by) _____
Frequency _____
Responsible party/agency _____
Contact _____ _____ _____ _____
Name Title Date Phone no.

Reporting is up-to-date	Yes	No	N/A
Reports are verified by the lead agency	Yes	No	N/A
Specific requirements in deed or decision documents have been met	Yes	No	N/A
Violations have been reported	Yes	No	N/A

Other problems or suggestions: Report attached

_____
_____
_____
_____

2. **Adequacy** ICs are adequate ICs are inadequate N/A
Remarks _____
_____
_____

D. General

1. **Vandalism/trespassing** Location shown on site map No vandalism evident
Remarks _____
_____

2. **Land use changes on site** N/A
Remarks _____
_____

3. **Land use changes off site** N/A
Remarks _____
_____

VI. GENERAL SITE CONDITIONS

A. Roads Applicable N/A

1. **Roads damaged** Location shown on site map Roads adequate N/A
Remarks _____
_____

B. Other Site Conditions

Remarks _____

_____

_____

_____

_____

_____

IX. GROUNDWATER WATER REMEDIES Applicable N/A

A. Groundwater Extraction Wells, Pumps, and Pipelines Applicable N/A

1. **Pumps, Wellhead Plumbing, and Electrical**
   Good condition All required wells properly operating Needs Maintenance N/A
   Remarks_____

2. **Extraction System Pipelines, Valves, Valve Boxes, and Other Appurtenances**
   Good condition Needs Maintenance
   Remarks_____

3. **Spare Parts and Equipment**
   Readily available Good condition Requires upgrade Needs to be provided
   Remarks_____

C. Treatment System Applicable N/A

1. **Treatment Train** (Check components that apply)
   Metals removal Oil/water separation Bioremediation
   Air stripping Carbon adsorbers
   Filters_____
   Additive (*e.g.*, chelation agent, flocculent)_____
   Others_____
   Good condition Needs Maintenance
   Sampling ports properly marked and functional
   Sampling/maintenance log displayed and up to date
   Equipment properly identified
   Quantity of groundwater treated annually_____
   Quantity of surface water treated annually_____
   Remarks_____

2.	**Electrical Enclosures and Panels** (properly rated and functional) N/A Good condition Needs Maintenance Remarks_____
3.	**Tanks, Vaults, Storage Vessels** N/A Good condition Proper secondary containment Needs Maintenance Remarks_____
4.	**Discharge Structure and Appurtenances** N/A Good condition Needs Maintenance Remarks_____
5.	**Treatment Building(s)** N/A Good condition (esp. roof and doorways) Needs repair Chemicals and equipment properly stored Remarks_____
6.	**Monitoring Wells** (pump and treatment remedy) Properly secured/locked Functioning Routinely sampled Good condition All required wells located Needs Maintenance N/A Remarks_____

XI. OVERALL OBSERVATIONS

A. Implementation of the Remedy

Describe issues and observations relating to whether the remedy is effective and functioning as designed. Begin with a brief statement of what the remedy is to accomplish (i.e., to contain contaminant plume, minimize infiltration and gas emission, etc.).

B. Adequacy of O&M

Describe issues and observations related to the implementation and scope of O&M procedures. In particular, discuss their relationship to the current and long-term protectiveness of the remedy.

TCHD
NWBTS

Five-Year Review Site Inspection Checklist

(Working document for site inspection. Information may be completed by hand and attached to the Five-Year Review report as supporting documentation of site status. "N/A" refers to "not applicable.")

I. SITE INFORMATION	
Site name: Northwest Boundary Treatment System	**Date of inspection:** April 27, 2010
Location and Region: RMA Region VIII	**EPA ID:** C05210020769
Agency, office, or company leading the five-year review: RVO	**Weather/temperature:**

Remedy Includes: (Check all that apply)

Landfill cover/containment
X Access controls
Institutional controls
X Groundwater pump and treatment
Surface water collection and treatment
Other_____

Monitored natural attenuation
X Groundwater containment
Vertical barrier walls

Attachments: Inspection team roster attached Site map attached

II. INTERVIEWS (Check all that apply)

1. **O&M site manager** _____ _____ _____
   Name Title Date
   Interviewed at site at office by phone Phone no. _____
   Problems, suggestions; Report attached _____

2. **O&M staff** _____ _____ _____
   Name Title Date
   Interviewed at site at office by phone Phone no. _____
   Problems, suggestions; Report attached _____

Looked @ 2 wells
22053
22081

3. **Local regulatory authorities and response agencies** (i.e., State and Tribal offices, emergency response office, police department, office of public health or environmental health, zoning office, recorder of deeds, or other city and county offices, etc.) Fill in all that apply.

Agency TRI-COUNTY HEALTH DOT
Contact MELOON MATSARENAZ RMA Field Supervisor 5-5-10 720-322-1524
Name Title Date Phone no.
Problems; suggestions; Report attached ALL OK NO COMMENT

Agency _____
Contact _____ _____ _____ _____
Name Title Date Phone no.
Problems; suggestions; Report attached _____

Agency _____
Contact _____ _____ _____ _____
Name Title Date Phone no.
Problems; suggestions; Report attached _____

Agency _____
Contact _____ _____ _____ _____
Name Title Date Phone no.
Problems; suggestions; Report attached _____

4. **Other interviews** (optional) Report attached.

V. ACCESS AND INSTITUTIONAL CONTROLS Applicable N/A

A. Fencing

1. **Fencing damaged** Location shown on site map Gates secured N/A
Remarks _____

B. Other Access Restrictions

1. **Signs and other security measures** Location shown on site map N/A
Remarks _____

C. Institutional Controls (ICs)

1. **Implementation and enforcement**

Site conditions imply ICs not properly implemented	Yes	No	N/A
Site conditions imply ICs not being fully enforced	Yes	No	N/A

Type of monitoring (*e.g.*, self-reporting, drive by) _____
Frequency _____
Responsible party/agency _____
Contact _____ _____ _____ _____
Name Title Date Phone no.

Reporting is up-to-date	Yes	No	N/A
Reports are verified by the lead agency	Yes	No	N/A
Specific requirements in deed or decision documents have been met	Yes	No	N/A
Violations have been reported	Yes	No	N/A

Other problems or suggestions: Report attached

_____
_____
_____
_____

2. **Adequacy** ICs are adequate ICs are inadequate N/A
Remarks_____
_____
_____

D. General

1. **Vandalism/trespassing** Location shown on site map No vandalism evident
Remarks_____
_____

2. **Land use changes on site** N/A
Remarks_____
_____

3. **Land use changes off site** N/A
Remarks_____
_____

VI. GENERAL SITE CONDITIONS

A. Roads Applicable N/A

1. **Roads damaged** Location shown on site map Roads adequate N/A
Remarks_____
_____

B. Other Site Conditions

Remarks _____

_____

_____

_____

_____

_____

IX. GROUNDWATER WATER REMEDIES Applicable N/A

A. Groundwater Extraction Wells, Pumps, and Pipelines Applicable N/A

1. **Pumps, Wellhead Plumbing, and Electrical**
   Good condition All required wells properly operating Needs Maintenance N/A
   Remarks_____

2. **Extraction System Pipelines, Valves, Valve Boxes, and Other Appurtenances**
   Good condition Needs Maintenance
   Remarks_____

3. **Spare Parts and Equipment**
   Readily available Good condition Requires upgrade Needs to be provided
   Remarks_____

C. Treatment System Applicable N/A

1. **Treatment Train** (Check components that apply)
   Metals removal Oil/water separation Bioremediation
   Air stripping Carbon adsorbers
   Filters_____
   Additive (*e.g.*, chelation agent, flocculent)_____
   Others_____
   Good condition Needs Maintenance
   Sampling ports properly marked and functional
   Sampling/maintenance log displayed and up to date
   Equipment properly identified
   Quantity of groundwater treated annually_____
   Quantity of surface water treated annually_____
   Remarks_____

2.	**Electrical Enclosures and Panels** (properly rated and functional) N/A Good condition Needs Maintenance Remarks_____
3.	**Tanks, Vaults, Storage Vessels** N/A Good condition Proper secondary containment Needs Maintenance Remarks_____
4.	**Discharge Structure and Appurtenances** N/A Good condition Needs Maintenance Remarks_____
5.	**Treatment Building(s)** N/A Good condition (esp. roof and doorways) Needs repair Chemicals and equipment properly stored Remarks_____
6.	**Monitoring Wells** (pump and treatment remedy) Properly secured/locked Functioning Routinely sampled Good condition All required wells located Needs Maintenance N/A Remarks_____

XI. OVERALL OBSERVATIONS

A. Implementation of the Remedy

Describe issues and observations relating to whether the remedy is effective and functioning as designed. Begin with a brief statement of what the remedy is to accomplish (i.e., to contain contaminant plume, minimize infiltration and gas emission, etc.).

B. Adequacy of O&M

Describe issues and observations related to the implementation and scope of O&M procedures. In particular, discuss their relationship to the current and long-term protectiveness of the remedy.

TAB N

OGITS TREATMENT SYSTEM

Five-Year Review Site Inspection Checklist

(Working document for site inspection. Information may be completed by hand and attached to the Five-Year Review report as supporting documentation of site status. "N/A" refers to "not applicable.")

I. SITE INFORMATION	
Site name: OGITS Treatment System	Date of inspection: April 27, 2010
Location and Region: RMA Region VIII	EPA ID: C05210020769
Agency, office, or company leading the five-year review: RVO	Weather/temperature: Clear, warm

Remedy Includes: (Check all that apply)

- Landfill cover/containment
- X Access controls
- Institutional controls
- X Groundwater pump and treatment
- Surface water collection and treatment
- Other Both the OGITS Treatment Plant and First Creek extraction system were included in this inspection
- Monitored natural attenuation
- Groundwater containment
- Vertical barrier walls

Attachments: Inspection team roster attached Site map attached

II. INTERVIEWS (Check all that apply)

1. O&M site manager Tony Lachance/Rick Beardslee (Name) _____ (Title) 4/27/10 (Date)
   Interviewed (at site) at office by phone Phone no. _____
   Problems, suggestions; Report attached _____

2. O&M staff _____ (Name) _____ (Title) _____ (Date)
   Interviewed at site at office by phone Phone no. _____
   Problems, suggestions; Report attached _____

3. **Local regulatory authorities and response agencies** (i.e., State and Tribal offices, emergency response office, police department, office of public health or environmental health, zoning office, recorder of deeds, or other city and county offices, etc.) Fill in all that apply.

Agency Environmental Protection Agency
Contact Ron Bertram (Name) RPM (Title) 7/27/10 (Date) 312-6061 (Phone no.)
Problems; suggestions; Report attached

Agency
Contact (Name) (Title) (Date) (Phone no.)
Problems; suggestions; Report attached

Agency
Contact (Name) (Title) (Date) (Phone no.)
Problems; suggestions; Report attached

Agency
Contact (Name) (Title) (Date) (Phone no.)
Problems; suggestions; Report attached

4. **Other interviews** (optional) Report attached.

V. ACCESS AND INSTITUTIONAL CONTROLS Applicable N/A

A. Fencing

1. **Fencing damaged** Location shown on site map Gates secured N/A
Remarks Fencing is in good condition at Treatment Plant

B. Other Access Restrictions

1. **Signs and other security measures** Location shown on site map N/A
Remarks

C. Institutional Controls (ICs)

1. **Implementation and enforcement**

Site conditions imply ICs not properly implemented	Yes	No	N/A
Site conditions imply ICs not being fully enforced	Yes	No	N/A

Type of monitoring (*e.g.*, self-reporting, drive by) _____
Frequency _____
Responsible party/agency _____
Contact _____ _____ _____ _____
Name Title Date Phone no.

Reporting is up-to-date	Yes	No	N/A
Reports are verified by the lead agency	Yes	No	N/A
Specific requirements in deed or decision documents have been met	Yes	No	N/A
Violations have been reported	Yes	No	N/A

Other problems or suggestions: Report attached

2. **Adequacy** ICs are adequate ICs are inadequate N/A
Remarks _____

D. General

1. **Vandalism/trespassing** Location shown on site map (No vandalism evident)
Remarks _____

2. **Land use changes on site** (N/A)
Remarks _____

3. **Land use changes off site** (N/A)
Remarks _____

VI. GENERAL SITE CONDITIONS

A. Roads Applicable N/A

1. **Roads damaged** Location shown on site map (Roads adequate) N/A
Remarks _____

B. Other Site Conditions

Remarks _____

IX. GROUNDWATER WATER REMEDIES Applicable N/A

A. Groundwater Extraction Wells, Pumps, and Pipelines Applicable N/A

1. **Pumps, Wellhead Plumbing, and Electrical**
   Good condition All required wells properly operating Needs Maintenance N/A
   Remarks Some Extraction and recharge well vaults show the effect of differential settling but wells are operational

2. **Extraction System Pipelines, Valves, Valve Boxes, and Other Appurtenances**
   Good condition Needs Maintenance
   Remarks see above

3. **Spare Parts and Equipment**
   Readily available Good condition Requires upgrade Needs to be provided
   Remarks _____

C. Treatment System Applicable N/A

1. **Treatment Train** (Check components that apply)
   Metals removal Oil/water separation Bioremediation
   Air stripping Carbon adsorbers
   Filters _____
   Additive (*e.g.*, chelation agent, flocculent) _____
   Others _____
   Good condition Needs Maintenance
   Sampling ports properly marked and functional
   Sampling/maintenance log displayed and up to date O&M Manual in place is from 2002 but is a draft version
   Equipment properly identified
   Quantity of groundwater treated annually _____
   Quantity of surface water treated annually _____
   Remarks _____

2. **Electrical Enclosures and Panels** (properly rated and functional)
N/A Good condition Needs Maintenance
Remarks

3. **Tanks, Vaults, Storage Vessels**
N/A Good condition Proper secondary containment Needs Maintenance
Remarks

4. **Discharge Structure and Appurtenances**
N/A Good condition Needs Maintenance
Remarks Not inspected

5. **Treatment Building(s)**
N/A Good condition (esp. roof and doorways) Needs repair
Chemicals and equipment properly stored
Remarks Some water on floor at time of visit but no leaks observed. Plant building in clean condition, free of debris

6. **Monitoring Wells** (pump and treatment remedy)
Properly secured/locked Functioning Routinely sampled Good condition
All required wells located Needs Maintenance N/A
Remarks Inspected upgradient monitoring wells 37075 and 37076. Pad, casing and caps & cover were in acceptable condition. Both wells were tagged with the well number. The extraction well field was free of debris.

XI. OVERALL OBSERVATIONS

A. Implementation of the Remedy

Describe issues and observations relating to whether the remedy is effective and functioning as designed. Begin with a brief statement of what the remedy is to accomplish (i.e., to contain contaminant plume, minimize infiltration and gas emission, etc.).

Inspection consisted of observations of the OGETS treatment plant and upgradient monitoring wells in the First Cr. extraction system. The condition of the monitoring wells and treatment plant were acceptable. However, the O&M manual in the plant was a draft version. A final controlled version of the O&M manual should be maintained at the treatment plant.

B. Adequacy of O&M

Describe issues and observations related to the implementation and scope of O&M procedures. In particular, discuss their relationship to the current and long-term protectiveness of the remedy.

CDPHE

Five-Year Review Site Inspection Checklist

(Working document for site inspection. Information may be completed by hand and attached to the Five-Year Review report as supporting documentation of site status. "N/A" refers to "not applicable.")

I. SITE INFORMATION	
Site name: OGITS Treatment System	**Date of inspection:** April 29, 2010
Location and Region: RMA Region VIII	**EPA ID:** C05210020769
Agency, office, or company leading the five-year review: RVO	**Weather/temperature:**

Remedy Includes: (Check all that apply)

- Landfill cover/containment
- X Access controls
- Institutional controls
- X Groundwater pump and treatment
- Surface water collection and treatment
- Other _____
- Monitored natural attenuation
- Groundwater containment
- Vertical barrier walls

Attachments: Inspection team roster attached Site map attached

II. INTERVIEWS (Check all that apply)

1. **O&M site manager** _____ _____ _____
   Name Title Date
   Interviewed at site at office by phone Phone no. _____
   Problems, suggestions; Report attached _____

2. **O&M staff** _____ _____ _____
   Name Title Date
   Interviewed at site at office by phone Phone no. _____
   Problems, suggestions; Report attached _____

3. **Local regulatory authorities and response agencies** (i.e., State and Tribal offices, emergency response office, police department, office of public health or environmental health, zoning office, recorder of deeds, or other city and county offices, etc.) Fill in all that apply.

Agency CDPHE
Contact Ken Vogler (Name) Engineer (Title) 4/27/10 (Date) 3 (92-3383) (Phone no.)
Problems; suggestions; Report attached All OK

Agency
Contact (Name) (Title) (Date) (Phone no.)
Problems; suggestions; Report attached

Agency
Contact (Name) (Title) (Date) (Phone no.)
Problems; suggestions; Report attached

Agency
Contact (Name) (Title) (Date) (Phone no.)
Problems; suggestions; Report attached

4. **Other interviews** (optional) Report attached.

V. ACCESS AND INSTITUTIONAL CONTROLS Applicable N/A

A. Fencing

1. **Fencing damaged** Location shown on site map Gates secured N/A
Remarks

B. Other Access Restrictions

1. **Signs and other security measures** Location shown on site map N/A
Remarks

C. Institutional Controls (ICs)

1. **Implementation and enforcement**

Site conditions imply ICs not properly implemented	Yes	No	N/A
Site conditions imply ICs not being fully enforced	Yes	No	N/A

Type of monitoring (*e.g.*, self-reporting, drive by) _____
Frequency _____
Responsible party/agency _____
Contact _____ _____ _____ _____
Name Title Date Phone no.

Reporting is up-to-date	Yes	No	N/A
Reports are verified by the lead agency	Yes	No	N/A
Specific requirements in deed or decision documents have been met	Yes	No	N/A
Violations have been reported	Yes	No	N/A

Other problems or suggestions: Report attached

_____
_____
_____
_____

2. **Adequacy** ICs are adequate ICs are inadequate N/A
Remarks _____
_____
_____

D. General

1. **Vandalism/trespassing** Location shown on site map No vandalism evident
Remarks _____
_____

2. **Land use changes on site** N/A
Remarks _____
_____

3. **Land use changes off site** N/A
Remarks _____
_____

VI. GENERAL SITE CONDITIONS

A. Roads Applicable N/A

1. **Roads damaged** Location shown on site map Roads adequate N/A
Remarks _____
_____

B. Other Site Conditions

Remarks _____

_____

_____

_____

_____

_____

IX. GROUNDWATER WATER REMEDIES Applicable N/A

A. Groundwater Extraction Wells, Pumps, and Pipelines Applicable N/A

1. **Pumps, Wellhead Plumbing, and Electrical**
   Good condition All required wells properly operating Needs Maintenance N/A
   Remarks_____

2. **Extraction System Pipelines, Valves, Valve Boxes, and Other Appurtenances**
   Good condition Needs Maintenance
   Remarks_____

3. **Spare Parts and Equipment**
   Readily available Good condition Requires upgrade Needs to be provided
   Remarks_____

C. Treatment System Applicable N/A

1. **Treatment Train** (Check components that apply)
   Metals removal Oil/water separation Bioremediation
   Air stripping Carbon adsorbers
   Filters_____
   Additive (*e.g.*, chelation agent, flocculent)_____
   Others_____
   Good condition Needs Maintenance
   Sampling ports properly marked and functional
   Sampling/maintenance log displayed and up to date
   Equipment properly identified
   Quantity of groundwater treated annually_____
   Quantity of surface water treated annually_____
   Remarks_____

2.	**Electrical Enclosures and Panels** (properly rated and functional) N/A Good condition Needs Maintenance Remarks_____
3.	**Tanks, Vaults, Storage Vessels** N/A Good condition Proper secondary containment Needs Maintenance Remarks_____
4.	**Discharge Structure and Appurtenances** N/A Good condition Needs Maintenance Remarks_____
5.	**Treatment Building(s)** N/A Good condition (esp. roof and doorways) Needs repair Chemicals and equipment properly stored Remarks_____
6.	**Monitoring Wells** (pump and treatment remedy) Properly secured/locked Functioning Routinely sampled Good condition All required wells located Needs Maintenance N/A Remarks_____

XI. OVERALL OBSERVATIONS

A. Implementation of the Remedy

Describe issues and observations relating to whether the remedy is effective and functioning as designed. Begin with a brief statement of what the remedy is to accomplish (i.e., to contain contaminant plume, minimize infiltration and gas emission, etc.).

B. Adequacy of O&M

Describe issues and observations related to the implementation and scope of O&M procedures. In particular, discuss their relationship to the current and long-term protectiveness of the remedy.

Five-Year Review Site Inspection Checklist

(Working document for site inspection. Information may be completed by hand and attached to the Five-Year Review report as supporting documentation of site status. "N/A" refers to "not applicable.")

I. SITE INFORMATION	
Site name: OGITS Treatment System	**Date of inspection:** April 29, 2010
Location and Region: RMA Region VIII	**EPA ID:** C05210020769
Agency, office, or company leading the five-year review: RVO	**Weather/temperature:**
Remedy Includes: (Check all that apply) Landfill cover/containment X Access controls Institutional controls X Groundwater pump and treatment Surface water collection and treatment Other _____ Monitored natural attenuation Groundwater containment Vertical barrier walls	
Attachments: Inspection team roster attached	Site map attached
II. INTERVIEWS (Check all that apply)	
1. **O&M site manager** _____ Name _____ Title _____ Date Interviewed at site at office by phone Phone no. _____ Problems, suggestions; Report attached _____	
2. **O&M staff** _____ Name _____ Title _____ Date Interviewed at site at office by phone Phone no. _____ Problems, suggestions; Report attached _____	

Well 37065
37076

3. **Local regulatory authorities and response agencies** (i.e., State and Tribal offices, emergency response office, police department, office of public health or environmental health, zoning office, recorder of deeds, or other city and county offices, etc.) Fill in all that apply.

Agency Tri-County
Contact Nelson Marquez (Name) Landfill supervisor (Title) 5/5/10 (Date) 720-322-1524 (Phone no.)
Problems; suggestions; Report attached All OK NO COMMENT

Agency
Contact (Name) (Title) (Date) (Phone no.)
Problems; suggestions; Report attached

Agency
Contact (Name) (Title) (Date) (Phone no.)
Problems; suggestions; Report attached

Agency
Contact (Name) (Title) (Date) (Phone no.)
Problems; suggestions; Report attached

4. **Other interviews** (optional) Report attached.

V. ACCESS AND INSTITUTIONAL CONTROLS Applicable N/A

A. Fencing

1. **Fencing damaged** Location shown on site map Gates secured N/A
Remarks

B. Other Access Restrictions

1. **Signs and other security measures** Location shown on site map N/A
Remarks

C. Institutional Controls (ICs)

1. **Implementation and enforcement**

Site conditions imply ICs not properly implemented	Yes	No	N/A
Site conditions imply ICs not being fully enforced	Yes	No	N/A

Type of monitoring (*e.g.*, self-reporting, drive by) _____
Frequency _____
Responsible party/agency _____
Contact _____ _____ _____ _____
Name Title Date Phone no.

Reporting is up-to-date	Yes	No	N/A
Reports are verified by the lead agency	Yes	No	N/A
Specific requirements in deed or decision documents have been met	Yes	No	N/A
Violations have been reported	Yes	No	N/A

Other problems or suggestions: Report attached

_____
_____
_____
_____

2. **Adequacy** ICs are adequate ICs are inadequate N/A
Remarks_____
_____
_____

D. General

1. **Vandalism/trespassing** Location shown on site map No vandalism evident
Remarks_____
_____

2. **Land use changes on site** N/A
Remarks_____
_____

3. **Land use changes off site** N/A
Remarks_____
_____

VI. GENERAL SITE CONDITIONS

A. Roads Applicable N/A

1. **Roads damaged** Location shown on site map Roads adequate N/A
Remarks_____
_____

B. Other Site Conditions

Remarks _____

_____

_____

_____

_____

_____

IX. GROUNDWATER WATER REMEDIES Applicable N/A

A. Groundwater Extraction Wells, Pumps, and Pipelines Applicable N/A

1. **Pumps, Wellhead Plumbing, and Electrical**
   Good condition All required wells properly operating Needs Maintenance N/A
   Remarks_____

2. **Extraction System Pipelines, Valves, Valve Boxes, and Other Appurtenances**
   Good condition Needs Maintenance
   Remarks_____

3. **Spare Parts and Equipment**
   Readily available Good condition Requires upgrade Needs to be provided
   Remarks_____

C. Treatment System Applicable N/A

1. **Treatment Train** (Check components that apply)
   Metals removal Oil/water separation Bioremediation
   Air stripping Carbon adsorbers
   Filters_____
   Additive (*e.g.*, chelation agent, flocculent)_____
   Others_____
   Good condition Needs Maintenance
   Sampling ports properly marked and functional
   Sampling/maintenance log displayed and up to date
   Equipment properly identified
   Quantity of groundwater treated annually_____
   Quantity of surface water treated annually_____
   Remarks_____

2.	**Electrical Enclosures and Panels** (properly rated and functional) N/A Good condition Needs Maintenance Remarks_____
3.	**Tanks, Vaults, Storage Vessels** N/A Good condition Proper secondary containment Needs Maintenance Remarks_____
4.	**Discharge Structure and Appurtenances** N/A Good condition Needs Maintenance Remarks_____
5.	**Treatment Building(s)** N/A Good condition (esp. roof and doorways) Needs repair Chemicals and equipment properly stored Remarks_____
6.	**Monitoring Wells** (pump and treatment remedy) Properly secured/locked Functioning Routinely sampled Good condition All required wells located Needs Maintenance N/A Remarks_____

XI. OVERALL OBSERVATIONS

A. Implementation of the Remedy

Describe issues and observations relating to whether the remedy is effective and functioning as designed. Begin with a brief statement of what the remedy is to accomplish (i.e., to contain contaminant plume, minimize infiltration and gas emission, etc.).

B. Adequacy of O&M

Describe issues and observations related to the implementation and scope of O&M procedures. In particular, discuss their relationship to the current and long-term protectiveness of the remedy.

TAB O

NORTHERN PATHWAY MODIFICATIONS

Five-Year Review Site Inspection Checklist

(Working document for site inspection. Information may be completed by hand and attached to the Five-Year Review report as supporting documentation of site status. "N/A" refers to "not applicable.")

I. SITE INFORMATION	
Site name: Northern Pathway System	**Date of inspection:** April 27, 2010
Location and Region: RMA Region VIII	**EPA ID:** C05210020769
Agency, office, or company leading the five-year review: RVO	**Weather/temperature:** Clear, warm

Remedy Includes: (Check all that apply)

- Landfill cover/containment
- X Access controls
- Institutional controls
- X Groundwater pump and treatment
- Surface water collection and treatment
- Other Inspected the recent NPS modifications and did not inspect the original system
- Monitored natural attenuation
- Groundwater containment
- Vertical barrier walls

Attachments: Inspection team roster attached Site map attached

II. INTERVIEWS (Check all that apply)

1. **O&M site manager** Tony Cachavee / Rick Beardslee 4/27/10
   Name Title Date
   Interviewed (at site) at office by phone Phone no. _____
   Problems, suggestions; Report attached _____

2. **O&M staff** _____ _____ _____
   Name Title Date
   Interviewed at site at office by phone Phone no. _____
   Problems, suggestions; Report attached _____

3. **Local regulatory authorities and response agencies** (i.e., State and Tribal offices, emergency response office, police department, office of public health or environmental health, zoning office, recorder of deeds, or other city and county offices, etc.) Fill in all that apply.

Agency Environmental Protection Agency
Contact Ron Bertram (Name) RPM (Title) 4/27/10 (Date) 312-6061 (Phone no.)
Problems; suggestions; Report attached

Agency
Contact (Name) (Title) (Date) (Phone no.)
Problems; suggestions; Report attached

Agency
Contact (Name) (Title) (Date) (Phone no.)
Problems; suggestions; Report attached

Agency
Contact (Name) (Title) (Date) (Phone no.)
Problems; suggestions; Report attached

4. **Other interviews** (optional) Report attached.

V. ACCESS AND INSTITUTIONAL CONTROLS Applicable N/A

A. Fencing

1. **Fencing damaged** Location shown on site map Gates secured (N/A)
Remarks

B. Other Access Restrictions

1. **Signs and other security measures** Location shown on site map (N/A)
Remarks

C. Institutional Controls (ICs)

1. **Implementation and enforcement**

Site conditions imply ICs not properly implemented	Yes	No	N/A
Site conditions imply ICs not being fully enforced	Yes	No	N/A

Type of monitoring (*e.g.*, self-reporting, drive by) _____
Frequency _____
Responsible party/agency _____
Contact _____ _____ _____ _____
Name Title Date Phone no.

Reporting is up-to-date	Yes	No	N/A
Reports are verified by the lead agency	Yes	No	N/A
Specific requirements in deed or decision documents have been met	Yes	No	N/A
Violations have been reported	Yes	No	N/A

Other problems or suggestions: Report attached

2. **Adequacy** ICs are adequate ICs are inadequate N/A
Remarks _____

D. General

1. **Vandalism/trespassing** Location shown on site map (No vandalism evident)
Remarks _____

2. **Land use changes on site** (N/A)
Remarks _____

3. **Land use changes off site** (N/A)
Remarks _____

VI. GENERAL SITE CONDITIONS

A. Roads Applicable N/A

1. **Roads damaged** Location shown on site map (Roads adequate) N/A
Remarks _____

B. Other Site Conditions

Remarks _____

IX. GROUNDWATER WATER REMEDIES (Applicable) N/A

A. Groundwater Extraction Wells, Pumps, and Pipelines (Applicable) N/A

1. **Pumps, Wellhead Plumbing, and Electrical**
   Good condition (All required wells properly operating) Needs Maintenance N/A
   Remarks Extraction wells were in acceptable condition However well 37821 has evidence of soil subsidence which has resulted in the well pad elevated 2-3 inches above ground

2. **Extraction System Pipelines, Valves, Valve Boxes, and Other Appurtenances**
   Good condition Needs Maintenance
   Remarks Inspected the metering building and it was in a clean condition and operating appropriately

3. **Spare Parts and Equipment**
   (Readily available) Good condition Requires upgrade Needs to be provided
   Remarks _____

C. Treatment System Applicable (N/A)

1. **Treatment Train** (Check components that apply)
   Metals removal Oil/water separation Bioremediation
   Air stripping Carbon adsorbers
   Filters _____
   Additive (*e.g.*, chelation agent, flocculent) _____
   Others _____
   Good condition Needs Maintenance
   Sampling ports properly marked and functional
   Sampling/maintenance log displayed and up to date
   Equipment properly identified
   Quantity of groundwater treated annually _____
   Quantity of surface water treated annually _____
   Remarks _____

2. **Electrical Enclosures and Panels** (properly rated and functional)
N/A Good condition Needs Maintenance
Remarks

3. **Tanks, Vaults, Storage Vessels**
N/A Good condition Proper secondary containment Needs Maintenance
Remarks

4. **Discharge Structure and Appurtenances**
N/A Good condition Needs Maintenance
Remarks

5. **Treatment Building(s)**
N/A Good condition (esp. roof and doorways) Needs repair
Chemicals and equipment properly stored
Remarks

6. **Monitoring Wells** (pump and treatment remedy)
Properly secured/locked Functioning Routinely sampled Good condition
All required wells located Needs Maintenance N/A
Remarks Inspected upgradient monitoring wells 37469 and 37452. Both wells were in good condition, Pads and Protective casing were acceptable and well identification in place. Both wells were locked.

XI. OVERALL OBSERVATIONS

A. Implementation of the Remedy

Describe issues and observations relating to whether the remedy is effective and functioning as designed. Begin with a brief statement of what the remedy is to accomplish (i.e., to contain contaminant plume, minimize infiltration and gas emission, etc.).

Inspection involved observation of monitoring and extraction wells at the NPS which represented the recent modifications to the system. The monitoring wells that were observed were in acceptable condition. However well 37821 which is an extraction well showed evidence of soil subsidence leaving the well pad 2" in the air. The soil subsidence should be corrected.

B. Adequacy of O&M

Describe issues and observations related to the implementation and scope of O&M procedures. In particular, discuss their relationship to the current and long-term protectiveness of the remedy.

CDPHE

OSWER No. 9355.7-03B-P

Five-Year Review Site Inspection Checklist

(Working document for site inspection. Information may be completed by hand and attached to the Five-Year Review report as supporting documentation of site status. "N/A" refers to "not applicable.")

I. SITE INFORMATION	
Site name: Northern Pathway System	**Date of inspection:** April 29, 2010
Location and Region: RMA Region VIII	**EPA ID:** C05210020769
Agency, office, or company leading the five-year review: RVO	**Weather/temperature:**
Remedy Includes: (Check all that apply) Landfill cover/containment X Access controls Institutional controls X Groundwater pump and treatment Surface water collection and treatment Other _____ Monitored natural attenuation Groundwater containment Vertical barrier walls	
Attachments: Inspection team roster attached Site map attached	
II. INTERVIEWS (Check all that apply)	
1. **O&M site manager** _____ _____ _____ Name Title Date Interviewed at site at office by phone Phone no. _____ Problems, suggestions; Report attached _____	
2. **O&M staff** _____ _____ _____ Name Title Date Interviewed at site at office by phone Phone no. _____ Problems, suggestions; Report attached _____	

3. **Local regulatory authorities and response agencies** (i.e., State and Tribal offices, emergency response office, police department, office of public health or environmental health, zoning office, recorder of deeds, or other city and county offices, etc.) Fill in all that apply.

Agency CDPHE
Contact Ken Vogler Engineer 4/27/10 3 692-3383
Name Title Date Phone no.
Problems; suggestions; Report attached Nothing of concern all OK

Agency
Contact
Name Title Date Phone no.
Problems; suggestions; Report attached

Agency
Contact
Name Title Date Phone no.
Problems; suggestions; Report attached

Agency
Contact
Name Title Date Phone no.
Problems; suggestions; Report attached

4. **Other interviews** (optional) Report attached.

V. ACCESS AND INSTITUTIONAL CONTROLS Applicable N/A

A. Fencing

1. **Fencing damaged** Location shown on site map Gates secured N/A
Remarks

B. Other Access Restrictions

1. **Signs and other security measures** Location shown on site map N/A
Remarks

C. Institutional Controls (ICs)

1. **Implementation and enforcement**

Site conditions imply ICs not properly implemented	Yes	No	N/A
Site conditions imply ICs not being fully enforced	Yes	No	N/A

Type of monitoring (*e.g.*, self-reporting, drive by) _____
Frequency _____
Responsible party/agency _____
Contact _____ _____ _____ _____
Name Title Date Phone no.

Reporting is up-to-date	Yes	No	N/A
Reports are verified by the lead agency	Yes	No	N/A
Specific requirements in deed or decision documents have been met	Yes	No	N/A
Violations have been reported	Yes	No	N/A

Other problems or suggestions: Report attached

_____
_____
_____
_____

2. **Adequacy** ICs are adequate ICs are inadequate N/A
Remarks _____
_____
_____

D. General

1. **Vandalism/trespassing** Location shown on site map No vandalism evident
Remarks _____
_____

2. **Land use changes on site** N/A
Remarks _____
_____

3. **Land use changes off site** N/A
Remarks _____
_____

VI. GENERAL SITE CONDITIONS

A. Roads Applicable N/A

1. **Roads damaged** Location shown on site map Roads adequate N/A
Remarks _____
_____

B. Other Site Conditions

Remarks _____

_____

_____

_____

_____

_____

IX. GROUNDWATER WATER REMEDIES Applicable N/A

A. Groundwater Extraction Wells, Pumps, and Pipelines Applicable N/A

1. **Pumps, Wellhead Plumbing, and Electrical**
   Good condition All required wells properly operating Needs Maintenance N/A
   Remarks _____

2. **Extraction System Pipelines, Valves, Valve Boxes, and Other Appurtenances**
   Good condition Needs Maintenance
   Remarks _____

3. **Spare Parts and Equipment**
   Readily available Good condition Requires upgrade Needs to be provided
   Remarks _____

C. Treatment System Applicable N/A

1. **Treatment Train** (Check components that apply)
   Metals removal Oil/water separation Bioremediation
   Air stripping Carbon adsorbers
   Filters _____
   Additive (*e.g.*, chelation agent, flocculent) _____
   Others _____
   Good condition Needs Maintenance
   Sampling ports properly marked and functional
   Sampling/maintenance log displayed and up to date
   Equipment properly identified
   Quantity of groundwater treated annually _____
   Quantity of surface water treated annually _____
   Remarks _____

2.	**Electrical Enclosures and Panels** (properly rated and functional) N/A Good condition Needs Maintenance Remarks_____
3.	**Tanks, Vaults, Storage Vessels** N/A Good condition Proper secondary containment Needs Maintenance Remarks_____
4.	**Discharge Structure and Appurtenances** N/A Good condition Needs Maintenance Remarks_____
5.	**Treatment Building(s)** N/A Good condition (esp. roof and doorways) Needs repair Chemicals and equipment properly stored Remarks_____
6.	**Monitoring Wells** (pump and treatment remedy) Properly secured/locked Functioning Routinely sampled Good condition All required wells located Needs Maintenance N/A Remarks_____

XI. OVERALL OBSERVATIONS

A. Implementation of the Remedy

Describe issues and observations relating to whether the remedy is effective and functioning as designed. Begin with a brief statement of what the remedy is to accomplish (i.e., to contain contaminant plume, minimize infiltration and gas emission, etc.).

B. Adequacy of O&M

Describe issues and observations related to the implementation and scope of O&M procedures. In particular, discuss their relationship to the current and long-term protectiveness of the remedy.

Five-Year Review Site Inspection Checklist

(Working document for site inspection. Information may be completed by hand and attached to the Five-Year Review report as supporting documentation of site status. "N/A" refers to "not applicable.")

I. SITE INFORMATION	
Site name: Northern Pathway System	**Date of inspection:** April 29, 2010
Location and Region: RMA Region VIII	**EPA ID:** C05210020769
Agency, office, or company leading the five-year review: RVO	**Weather/temperature:**
Remedy Includes: (Check all that apply) Landfill cover/containment X Access controls Institutional controls X Groundwater pump and treatment Surface water collection and treatment Other _____ Monitored natural attenuation Groundwater containment Vertical barrier walls	
Attachments: Inspection team roster attached Site map attached	
II. INTERVIEWS (Check all that apply)	
1. **O&M site manager** _____ _____ _____ Name Title Date Interviewed at site at office by phone Phone no. _____ Problems, suggestions; Report attached _____	
2. **O&M staff** _____ _____ _____ Name Title Date Interviewed at site at office by phone Phone no. _____ Problems, suggestions; Report attached _____	

3. **Local regulatory authorities and response agencies** (i.e., State and Tribal offices, emergency response office, police department, office of public health or environmental health, zoning office, recorder of deeds, or other city and county offices, etc.) Fill in all that apply.

Agency TRI-COUNTY
Contact MELODY MASCARENAZ RMA FIELD SUPERVISOR 720.3221520
Name Title Date Phone no.
Problems; suggestions; Report attached ALL OK NO COMMENT 5/5/10

Agency
Contact
Name Title Date Phone no.
Problems; suggestions; Report attached

Agency
Contact
Name Title Date Phone no.
Problems; suggestions; Report attached

Agency
Contact
Name Title Date Phone no.
Problems; suggestions; Report attached

4. **Other interviews** (optional) Report attached.

V. ACCESS AND INSTITUTIONAL CONTROLS Applicable N/A

A. Fencing

1. **Fencing damaged** Location shown on site map Gates secured N/A
Remarks

B. Other Access Restrictions

1. **Signs and other security measures** Location shown on site map N/A
Remarks

C. Institutional Controls (ICs)

1. **Implementation and enforcement**

Site conditions imply ICs not properly implemented	Yes	No	N/A
Site conditions imply ICs not being fully enforced	Yes	No	N/A

Type of monitoring (*e.g.*, self-reporting, drive by) _____
Frequency _____
Responsible party/agency _____
Contact _____ _____ _____ _____
Name Title Date Phone no.

Reporting is up-to-date	Yes	No	N/A
Reports are verified by the lead agency	Yes	No	N/A
Specific requirements in deed or decision documents have been met	Yes	No	N/A
Violations have been reported	Yes	No	N/A

Other problems or suggestions: Report attached

_____
_____
_____
_____

2. **Adequacy** ICs are adequate ICs are inadequate N/A
Remarks_____
_____
_____

D. General

1. **Vandalism/trespassing** Location shown on site map No vandalism evident
Remarks_____
_____

2. **Land use changes on site** N/A
Remarks_____
_____

3. **Land use changes off site** N/A
Remarks_____
_____

VI. GENERAL SITE CONDITIONS

A. Roads Applicable N/A

1. **Roads damaged** Location shown on site map Roads adequate N/A
Remarks_____
_____

B. Other Site Conditions

Remarks _____

_____

_____

_____

_____

_____

IX. GROUNDWATER WATER REMEDIES Applicable N/A

A. Groundwater Extraction Wells, Pumps, and Pipelines Applicable N/A

1. **Pumps, Wellhead Plumbing, and Electrical**
   Good condition All required wells properly operating Needs Maintenance N/A
   Remarks_____

2. **Extraction System Pipelines, Valves, Valve Boxes, and Other Appurtenances**
   Good condition Needs Maintenance
   Remarks_____

3. **Spare Parts and Equipment**
   Readily available Good condition Requires upgrade Needs to be provided
   Remarks_____

C. Treatment System Applicable N/A

1. **Treatment Train** (Check components that apply)
   Metals removal Oil/water separation Bioremediation
   Air stripping Carbon adsorbers
   Filters_____
   Additive (*e.g.*, chelation agent, flocculent)_____
   Others_____
   Good condition Needs Maintenance
   Sampling ports properly marked and functional
   Sampling/maintenance log displayed and up to date
   Equipment properly identified
   Quantity of groundwater treated annually_____
   Quantity of surface water treated annually_____
   Remarks_____

2.	**Electrical Enclosures and Panels** (properly rated and functional) N/A Good condition Needs Maintenance Remarks_____
3.	**Tanks, Vaults, Storage Vessels** N/A Good condition Proper secondary containment Needs Maintenance Remarks_____
4.	**Discharge Structure and Appurtenances** N/A Good condition Needs Maintenance Remarks_____
5.	**Treatment Building(s)** N/A Good condition (esp. roof and doorways) Needs repair Chemicals and equipment properly stored Remarks_____
6.	**Monitoring Wells** (pump and treatment remedy) Properly secured/locked Functioning Routinely sampled Good condition All required wells located Needs Maintenance N/A Remarks_____

XI. OVERALL OBSERVATIONS

A. Implementation of the Remedy

Describe issues and observations relating to whether the remedy is effective and functioning as designed. Begin with a brief statement of what the remedy is to accomplish (i.e., to contain contaminant plume, minimize infiltration and gas emission, etc.).

B. Adequacy of O&M

Describe issues and observations related to the implementation and scope of O&M procedures. In particular, discuss their relationship to the current and long-term protectiveness of the remedy.

TAB P

SANITARY SEWER MARKERS

Five-Year Review Site Inspection Checklist

(Working document for site inspection. Information may be completed by hand and attached to the Five-Year Review report as supporting documentation of site status. "N/A" refers to "not applicable.")

I. SITE INFORMATION	
Site name: Sanitary Sewer Plugging	**Date of inspection:** April 28, 2010
Location and Region: RMA Region VIII	**EPA ID:** C05210020769
Agency, office, or company leading the five-year review: RVO	**Weather/temperature:** Mostly Sunny, wind from NW up to 20 mph.

Remedy Includes: (Check all that apply)

Landfill cover/containment
Access controls
Institutional controls
Groundwater pump and treatment
Surface water collection and treatment
Monitored natural attenuation
Groundwater containment
Vertical barrier walls
X Other Plugged sanitary sewer manholes; markers and signs indicating location of the sanitary sewer line

Attachments: Inspection team roster attached Site map attached

II. INTERVIEWS (Check all that apply)

1. **O&M site manager** R. Beardsly (Name) _____ (Title) 4-28-10 (Date)
   Interviewed (at site) at office by phone Phone no. _____
   Problems, suggestions; Report attached _____

2. **O&M staff** _____ (Name) _____ (Title) _____ (Date)
   Interviewed at site at office by phone Phone no. _____
   Problems, suggestions; Report attached _____

3. **Local regulatory authorities and response agencies** (i.e., State and Tribal offices, emergency response office, police department, office of public health or environmental health, zoning office, recorder of deeds, or other city and county offices, etc.) Fill in all that apply.

Agency EPA
Contact Ron Bertram (Name) RPM (Title) 4-28-10 (Date) (303)312-6061 (Phone no.)
Problems; suggestions; Report attached

Agency
Contact (Name) (Title) (Date) (Phone no.)
Problems; suggestions; Report attached

Agency
Contact (Name) (Title) (Date) (Phone no.)
Problems; suggestions; Report attached

Agency
Contact (Name) (Title) (Date) (Phone no.)
Problems; suggestions; Report attached

4. **Other interviews** (optional) Report attached.

V. ACCESS AND ~~INSTITUTIONAL~~ Engineering CONTROLS (Applicable) N/A

A. Fencing

1. **Fencing damaged** Location shown on site map Gates secured (N/A)
Remarks

B. Other Access Restrictions

1. **Signs and other security measures** Location shown on site map N/A
Remarks Some markers were Not in place for the Sanitary sewer manholes

Engineering

C. ~~Institutional~~ Controls (ICs)

1. **Implementation and enforcement**

Site conditions imply ICs not properly implemented	Yes	No	N/A
Site conditions imply ICs not being fully enforced	Yes	No	N/A

Type of monitoring (*e.g.*, self-reporting, drive by) _____
Frequency _____
Responsible party/agency _____
Contact _____ _____ _____ _____
Name Title Date Phone no.

Reporting is up-to-date	Yes	No	N/A
Reports are verified by the lead agency	Yes	No	N/A
Specific requirements in deed or decision documents have been met	Yes	No	N/A
Violations have been reported	Yes	No	N/A

Other problems or suggestions: Report attached

See Page D-4 for report findings.

2. **Adequacy** ICs are adequate ICs are inadequate N/A
Remarks _____

D. General

1. **Vandalism/trespassing** Location shown on site map No vandalism evident
Remarks _____

2. **Land use changes on site** N/A
Remarks _____

3. **Land use changes off site** N/A
Remarks _____

VI. GENERAL SITE CONDITIONS

A. Roads Applicable N/A

1. **Roads damaged** Location shown on site map Roads adequate N/A
Remarks _____

B. Other Site Conditions

Remarks 3 Inspections were made of plugged sanitary sewer manholes; markers and signs indicating location of the sanitary sewer line. The RVO Land use control Monotoring report was used as a guide for conducting inspections.

XI. OVERALL OBSERVATIONS

A. Implementation of the Remedy

Describe issues and observations relating to whether the remedy is effective and functioning as designed. Begin with a brief statement of what the remedy is to accomplish (i.e., to contain contaminant plume, minimize infiltration and gas emission, etc.).

The purpose of the inspections was to assess the markers for Plugged sewers. The following are observations.

- Markers were missing from 26, 28, 46, 48, 50 and 9 (within set 26), as well as 392-1 and 393-4 as reported by RVO.
- Exposed pipe was still exposed North of 49, as reported by RVO
- 29, 35 and 79 were verified to be buried by new access roads.
- Due to lack of GPS, 67A-67D and 58-60 were not located.
- In addition, markers were missing from 25, 27, 43, 44, 45, 46, 47, 48 and 50. Also, #9 had a broken marker that won't stay upright.

B. Adequacy of O&M

Describe issues and observations related to the implementation and scope of O&M procedures. In particular, discuss their relationship to the current and long-term protectiveness of the remedy.

CDPHE

Five-Year Review Site Inspection Checklist

(Working document for site inspection. Information may be completed by hand and attached to the Five-Year Review report as supporting documentation of site status. "N/A" refers to "not applicable.")

I. SITE INFORMATION	
Site name: Sanitary Sewer Plugging	**Date of inspection:** April 28, 2010
Location and Region: RMA Region VIII	**EPA ID:** C05210020769
Agency, office, or company leading the five-year review: RVO	**Weather/temperature:**
Remedy Includes: (Check all that apply) Landfill cover/containment Access controls Institutional controls Groundwater pump and treatment Surface water collection and treatment Monitored natural attenuation Groundwater containment Vertical barrier walls X Other__Plugged sanitary sewer manholes; markers and signs indicating location of the sanitary sewer line	
Attachments: Inspection team roster attached Site map attached	
II. INTERVIEWS (Check all that apply)	
1. **O&M site manager** _____ _____ _____ Name Title Date Interviewed at site at office by phone Phone no. _____ Problems, suggestions; Report attached _____	
2. **O&M staff** _____ _____ _____ Name Title Date Interviewed at site at office by phone Phone no. _____ Problems, suggestions; Report attached _____	

3. **Local regulatory authorities and response agencies** (i.e., State and Tribal offices, emergency response office, police department, office of public health or environmental health, zoning office, recorder of deeds, or other city and county offices, etc.) Fill in all that apply.

Agency CDPHE
Contact Ken Vogler (Name) Engineer (Title) 4/28/10 (Date) 303 692-3383 (Phone no.)
Problems; suggestions; Report attached Spot inspected tile sanitary sewer caps in Bison Pilot Area (BPA) All OK

Agency _____
Contact _____ (Name) _____ (Title) _____ (Date) _____ (Phone no.)
Problems; suggestions; Report attached _____

Agency _____
Contact _____ (Name) _____ (Title) _____ (Date) _____ (Phone no.)
Problems; suggestions; Report attached _____

Agency _____
Contact _____ (Name) _____ (Title) _____ (Date) _____ (Phone no.)
Problems; suggestions; Report attached _____

4. **Other interviews** (optional) Report attached.

V. ACCESS AND INSTITUTIONAL CONTROLS Applicable N/A

A. Fencing

1. **Fencing damaged** Location shown on site map Gates secured N/A
Remarks _____

B. Other Access Restrictions

1. **Signs and other security measures** Location shown on site map N/A
Remarks _____

C. Institutional Controls (ICs)

1. **Implementation and enforcement**

Site conditions imply ICs not properly implemented	Yes	No	N/A
Site conditions imply ICs not being fully enforced	Yes	No	N/A

Type of monitoring (*e.g.*, self-reporting, drive by) _____
Frequency _____
Responsible party/agency _____
Contact _____ _____ _____ _____
Name Title Date Phone no.

Reporting is up-to-date	Yes	No	N/A
Reports are verified by the lead agency	Yes	No	N/A
Specific requirements in deed or decision documents have been met	Yes	No	N/A
Violations have been reported	Yes	No	N/A

Other problems or suggestions: Report attached

_____
_____
_____
_____

2. **Adequacy** ICs are adequate ICs are inadequate N/A
Remarks_____
_____
_____

D. General

1. **Vandalism/trespassing** Location shown on site map No vandalism evident
Remarks_____
_____

2. **Land use changes on site** N/A
Remarks_____
_____

3. **Land use changes off site** N/A
Remarks_____
_____

VI. GENERAL SITE CONDITIONS

A. Roads Applicable N/A

1. **Roads damaged** Location shown on site map Roads adequate N/A
Remarks_____
_____

B. Other Site Conditions

Remarks _____ Inspections were made of plugged sanitary sewer manholes; markers and signs indicating location of the sanitary sewer line. _____

XI. OVERALL OBSERVATIONS

A. Implementation of the Remedy

Describe issues and observations relating to whether the remedy is effective and functioning as designed. Begin with a brief statement of what the remedy is to accomplish (i.e., to contain contaminant plume, minimize infiltration and gas emission, etc.).

B. Adequacy of O&M

Describe issues and observations related to the implementation and scope of O&M procedures. In particular, discuss their relationship to the current and long-term protectiveness of the remedy.

Tri County Health

Five-Year Review Site Inspection Checklist

(Working document for site inspection. Information may be completed by hand and attached to the Five-Year Review report as supporting documentation of site status. "N/A" refers to "not applicable.")

I. SITE INFORMATION	
Site name: Sanitary Sewer Plugging	**Date of inspection:** April 28, 2010
Location and Region: RMA Region VIII	**EPA ID:** C05210020769
Agency, office, or company leading the five-year review: RVO	**Weather/temperature:** windy – 75°F, 30mph steady, clear – P cloudy

Remedy Includes: (Check all that apply)

Landfill cover/containment
Access controls
Institutional controls
Groundwater pump and treatment
Surface water collection and treatment
Monitored natural attenuation
Groundwater containment
Vertical barrier walls
X Other__Plugged sanitary sewer manholes; markers and signs indicating location of the sanitary sewer line

Attachments: Inspection team roster attached Site map attached

II. INTERVIEWS (Check all that apply)

1. **O&M site manager** _____ _____ _____
   Name Title Date
   Interviewed at site at office by phone Phone no. _____
   Problems, suggestions; Report attached _____

2. **O&M staff** _____ _____ _____
   Name Title Date
   Interviewed at site at office by phone Phone no. _____
   Problems, suggestions; Report attached _____

3. **Local regulatory authorities and response agencies** (i.e., State and Tribal offices, emergency response office, police department, office of public health or environmental health, zoning office, recorder of deeds, or other city and county offices, etc.) Fill in all that apply.

Agency TCHD
Contact Tom Maestella (Name) | ENV. Specialist (Title) | 4/28/10 (Date) | 720 322-1522 (Phone no.)
Problems; suggestions; Report attached N/A.

Agency
Contact (Name) | (Title) | (Date) | (Phone no.)
Problems; suggestions; Report attached

Agency
Contact (Name) | (Title) | (Date) | (Phone no.)
Problems; suggestions; Report attached

Agency
Contact (Name) | (Title) | (Date) | (Phone no.)
Problems; suggestions; Report attached

4. **Other interviews** (optional) Report attached.

V. ACCESS AND INSTITUTIONAL CONTROLS Applicable N/A

A. Fencing

1. **Fencing damaged** Location shown on site map Gates secured N/A
Remarks

B. Other Access Restrictions

1. **Signs and other security measures** Location shown on site map N/A
Remarks All signage ADEQUATE

C. Institutional Controls (ICs)

1. **Implementation and enforcement**

Site conditions imply ICs not properly implemented — Yes No N/A
Site conditions imply ICs not being fully enforced — Yes No N/A

Type of monitoring (*e.g.*, self-reporting, drive by) _____
Frequency _____
Responsible party/agency _____
Contact _____ _____ _____ _____
Name Title Date Phone no.

Reporting is up-to-date — Yes No N/A
Reports are verified by the lead agency — Yes No N/A

Specific requirements in deed or decision documents have been met — Yes No N/A
Violations have been reported — Yes No N/A
Other problems or suggestions: Report attached

2. **Adequacy** ICs are adequate ICs are inadequate N/A
Remarks _____

D. General

1. **Vandalism/trespassing** Location shown on site map No vandalism evident
Remarks Viewed 5 MANHOLES, Concrete, signage, markers in tact on All.

2. **Land use changes on site** N/A
Remarks _____

3. **Land use changes off site** N/A
Remarks _____

VI. GENERAL SITE CONDITIONS

A. Roads Applicable N/A

1. **Roads damaged** Location shown on site map Roads adequate N/A
Remarks _____

B. Other Site Conditions

Remarks 5 Inspections were made of plugged sanitary sewer manholes; markers and signs indicating location of the sanitary sewer line. All intact NO DAMAGE.

XI. OVERALL OBSERVATIONS

A. Implementation of the Remedy

Describe issues and observations relating to whether the remedy is effective and functioning as designed. Begin with a brief statement of what the remedy is to accomplish (i.e., to contain contaminant plume, minimize infiltration and gas emission, etc.).

Plugged to restrict access. Concrete plug functioning as designed.

B. Adequacy of O&M

Describe issues and observations related to the implementation and scope of O&M procedures. In particular, discuss their relationship to the current and long-term protectiveness of the remedy.

O&M appear adequate.

- 03001 – R. yard – note how labeled.
- Br ridge – buried well – 36566
- LB – DW10 – well # 36320
- 24105 – smashed photo
- 04029 – ✓
- 02522 – ✓