

APPENDIX F
Data Validation Program Memorandum



M E M O R A N D U M

TO: Brian Rakvica, P.E., Nevada Division of Environmental Protection
Dr. Marysia Skorska, P.E., Nevada Division of Environmental Protection

cc: Mr. Joseph Kelly, Montrose Chemical Corporation of California
Mr. Paul Sundberg, Montrose Chemical Corporation of California
Mr. George Crouse, Syngenta Crop Protection, Inc.
Mr. Sam Chamberlain, Pioneer Companies
Mr. Lee Erickson, Stauffer Management Company

FROM: Grant Williams, P.G., GeoSyntec Consultants
Lynne Preslo, C.E.M., P.G., GeoSyntec Consultants

DATE: 11 July 2006

SUBJECT: **Data Validation Program, Downgradient Area Sampling Event,
Henderson, Nevada**

The purpose of this memorandum is to describe the data validation approach for the upcoming Downgradient Area groundwater sampling event to be conducted by GeoSyntec Consultants, Inc. (GeoSyntec) on behalf of the Companies.

For the upcoming downgradient sampling event, GeoSyntec intends to follow the data validation approach detailed in the attached technical memorandum submitted to the Nevada Division of Environmental Protection (NDEP) on June 28, 2006 by Hargis + Associates, Inc. (Hargis) on behalf of Montrose. It is our understanding that NDEP approved this approach, in the letter from Mr. Brian Rakvica of NDEP to Mr. Joe Kelly of Montrose dated July 5, 2006.

Specifically, according to the attached approach, GeoSyntec will obtain Level 4 Data Validation Packages (DVP) for all samples and have Level 3 (80% of sample population) and Level 4 (20% of sample population) data validation summaries prepared for groundwater samples. A qualified data validator (Laboratory Data Consultants of Carlsbad, CA) will perform data validation as detailed in Attachments 1 and 2 of the aforementioned Hargis memo.

Should you have any questions, please feel free to contact either of us at your convenience. Thanks in advance for your help on this issue.

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Attachment(s):

Hargis + Associates, Inc. Technical Memorandum to B. Rakvica, Nevada Division of Environmental Protection, from M. Palmer, Re: Proposed Data Validation Program, Supplemental Soil and Groundwater Programs, Montrose Site, Henderson, Nevada, June 28, 2006.

Nevada Division of Environmental Protection Memorandum to Joe Kelly, Montrose Chemical Corporation of California, from B. Rakvica, Re: Nevada Division of Environmental Protection Response to: Revised Data Validation Program, Supplemental Soil and Groundwater Programs, July 5, 2006.

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Technical Memorandum-Revision 1.0

Via: E-MAIL & U.S. MAIL Project No: 732.40
Date: June 28, 2006
To: Brian Rakvica, PE,/Dr. Marysia Skorska, Nevada Division of Environmental Protection
cc: Mr. Joseph Kelly, Montrose Chemical Corporation of California
Mr. Paul Sundberg, Montrose Chemical Corporation of California
Mr. Jim Najima, PE, RG, Nevada Division of Environmental Protection, Carson City
Joel Mack, Esq., Latham & Watkins
From: Brian Waggle/Mike Palmer, Hargis + Associates, Inc.
Re: Revised Data Validation Program, Supplemental Soil and Groundwater Programs,
Montrose Site, Henderson, Nevada

The purpose of this technical memorandum is to propose a data validation program for the upcoming site investigation work at the Montrose Henderson Site, specifically, for the implementation of the Supplemental Soils and Groundwater Investigation Workplans. Nevada Department of Environmental Protection (NDEP) requested that data validation be conducted in the letter dated January 26, 2006, providing comments to the Supplemental Soils Investigation Workplan, and the letter dated March 15, 2006, providing comments to the Supplemental Groundwater Investigation Workplan (NDEP, 2006a and 2006b). Montrose submitted a proposal for data validation to NDEP on May 10, 2006 (H+A, 2006a). Co-incidentally NDEP provided Montrose with guidance on data validation in a letter dated May 3, 2006 (NDEP, 2006c). The following responds to the issues identified in the data validation guidance of May 3, 2006, as discussed and modified in the telephone conference call with NDEP on June 19, 2006 (NDEP, 2006d)

It is our understanding that NDEP will require data validation for all data associated with the risk assessment and the conceptual site model. In the May 10, 2006, submittal Montrose recommended doing 100 percent data validation for all groundwater and shallow soil and a limited data validation for deep soils below 10 feet below land surface. However, after review of the NDEP guidance, Montrose now agrees to validate all soil and groundwater samples collected as part of the Supplemental Soil and Groundwater Sampling Workplans.

As discussed and agreed upon with NDEP in the June 19, 2006, telephone conference call, Montrose will be conducting data validation using the "Level" approach rather than the "Tier"

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approach as documented in the NDEP letter of May 3, 2006 (NDEP, 2006c and 2006d). Montrose proposes to use the Level approach for the following reasons based in part on information provided to us by Laboratory Data Consultants, the firm which will be retained to perform data validation for Montrose:

- The Level approach is more commonly used in the environmental industry than the Tiered approach;
- The laboratories are knowledgeable of the requirements for the Level 3 and 4 data validation packages;
- The use of the Level approach is consistent with the work recently completed by Basic Remediation Company; and
- The use of Level 3 and Level 4 data validation is more robust than Tier 1A/1B and Tier 3 data validation. Level 3 validation evaluates calibration for 100 percent of the samples whereas, for Tier 1A/1B validation, only a percentage of calibration is reviewed. It is our understanding that a majority of data validation qualifiers are associated with calibration, and thus, it is preferable to review 100 percent of the calibration data as done so by Level 3 validation.

Accordingly, Montrose will request 100 percent Level 4 data validation packages (DVP) from the laboratory to support a combination of Level 3 and Level 4 data validation. Subsequent to receiving the Level 4 packages, Montrose proposes to perform Level 3 data validation on 80 percent of the samples and Level 4 validation on 20 percent of the samples. All samples collected during both supplementary investigation programs will be validated with this approach. A summary of the elements of Level 3 and Level 4 data validation is provided (Attachment 1).

NDEP in their letter of May 3, 2006 was concerned about which compounds would undergo data validation to the level of raw data or in this case Level 4 data validation. Attachment A of the May 3, 2006 letter, page 1, 3rd paragraph stated : *“Ideally this level of validation should be focused on a class of compounds that has been identified as significant for the area of interest, based upon previous data; or that represent special cases ...”*. Level 4 data validation will be focused on samples that are analyzed for the full Montrose site related compound (SRC) list. Since Level 4 data validation looks at all compounds in a sample delivery group or laboratory report, Level 4 data validation will not be biased to a particular class of compounds.

Montrose also concurs with the guidelines presented in the May 3, 2006 letter regarding determination of the set of data that will need to undergo raw data or Level IV validation (reference Attachment 1, Page 1, last paragraph of the May 3, 2006 NDEP letter).

If Level 4 data validation activities indicate a systemic problem or repeated non-compliance, the percentage of samples evaluated using Level 4 data validation procedures will be increased to adequately determine the level of impact associated with the identified systemic problem or non-

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compliance. The increased data validation efforts will also be used to determine the root cause of the systemic problem or non-compliance and identify an appropriate corrective action.

Several documents will be generated during the data validation process. Upon completion of work, the following documents will be submitted to NDEP:

- Laboratory report: Electronic copy of the laboratory report will be provided as an Adobe Acrobat PDF file.
- Data Validation Package: Level 4 DVP for each sample will be provided as an Adobe Acrobat PDF file.
- Data validation (DV) summary reports for each sample delivery group (laboratory report) will be provided. These DV summary reports provide the details of the data validation for each laboratory report or Sample Delivery Group.
- Data Validation Summary report (DVSR). Upon completion of all data validation for a particular phase of work, i.e. the supplemental soil workplan, a DVSR will be prepared that summarizes the procedures used to perform the data validation and the results of the validation in summary tables. The information that is to be provided in this document is outlined in Attachment 2.
- Database submittal. Upon completion of a particular phase of work, a database update will be provided and submitted to NDEP that contains only that data collected during that phase of work such as the Supplemental Soil Workplan.

Montrose also understands that NDEP will require data validation of historical data. We will provide NDEP with recommendations regarding the historical soil data review under separate cover as discussed and agreed upon in the June 19, 2006 telephone conference call.

If you should have any questions, please feel free to contact Brian Waggle or me at your convenience.

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REFERENCES

- Nevada Division of Environmental Protection, 2006a. Letter to J. Kelly, Montrose Chemical Corporation of California, Re: Nevada Division of Environmental Protection Comments for: Draft Supplemental Soil Investigaiton Workplan dated November 16, 2005, Montrose Chemical Corporation, NDEP Facility ID # H-000540, dated January 26, 2006.
- _____, 2006b Letter to G. Crouse, Syngenta Crop Protection, Inc., L. Erickson, Stauffer Management Company, J. Kelly , Montrose Chemical Corporation of California, and C. Sylvia, Pioneer Americas LLC, Re: Nevada Division of Environmental Protection Response to: 1) Draft Work Plan for Additional Vadose Zone Characterization, Dated July 18, 2005, Prepared by PES Environmental on Behalf of Syngenta; 2) Work Plan for Site-Wide Groundwater Sampling Program, Dated January 30, 2006, Prepared by PES Environmental on Behalf of Syngenta; 3) Draft Supplemental Groundwater Investigation Workplan, Dated February 4, 2006, Prepared by Hargis + Associates on Behalf of Montrose Chemical; 4) Work Plan, Downgradient Ground Water Sampling Event, Dated January 12, 2006, Prepare by GeoSyntec Consultants on Behalf of Montrose chemical Corporaiton; NDEP Facility ID # H-000536 and NDEP Facility ID # H-000540, dated March 15, 2006.
- _____, 2006c. Letter to M. Paris, Basic Remediation Company, S. Crowley, Tonox LLC, S. Chamberlain, Pioneer Companies, Inc., J. Delly, Montrose Chemical Corporation of California, G. Crouse, Syngenta Crop Protection, Inc., and C. Wilinson, Titanium Metals Coproation, Re: BMI Plant Sites and Common Areas Projects, Henderson, Nevada, NDEP Guidance on Data Validation, dated May 3, 2006.
- _____, 2006d. June 19, 2006, Meeting Minutes of Telephone Conference Call. Attendees: B. Rakvica, NDEP, D. Gratson, Neptune, M. Palmer, Hargis + Associates, Inc., G. Crouse, Syngenta, N. Pogoncheff, PES, R. Amano, LDC, G. Williams, GeoSyntec.
- Hargis + Associates, Inc. 2006. Technical Memorandum to B. Rakvica/M. Skorska, Nevada Division of Environmental Protection, from M. Palmer, Re: Proposed Data Validation Program, Supplemental Soil and Groundwater Programs, Montrose Site, Henderson, Nevada. May 10, 2006.

ATTACHMENT 1

LEVELS 3 AND 4 DATA VALIDATION SUMMARIES

Attachment 1 Levels 3 and 4 Data Validation Summaries

U.S. Environmental Protection Agency (EPA) Level 3 Data Validation

EPA Level 3 data validation will be performed on the summary (i.e., no raw data) packages for analyses of soil and groundwater samples analyzed by EPA and non-EPA methods. All data validation procedures will be in accordance with EPA Functional Guideline requirements and industry standards.

Data Validation Elements

The quality control (QC) elements to be reviewed for Level 3 validation are identified in the following subsections.

Organic Analyses

- Holding times
- Initial calibration
- Continuing calibration
- Blanks
- Surrogate recovery
- Matrix spike and matrix spike duplicate recovery
- Laboratory control sample recovery
- Internal standard performance
- Field duplicate sample analysis Relative Percent Difference (RPD)
- Reporting limits
- Overall assessment of data in the Sample Delivery Group (SDG)

Inorganic Analyses

- Holding times
- Initial calibration
- Continuing calibration
- Blanks
- Surrogate recovery
- Matrix spike recovery
- Duplicate sample RPD
- Laboratory control sample recovery
- ICP interference check
- MSA and serial dilution checks
- Field duplicate sample analysis RPD
- Reporting limits
- Overall assessment of data in the SDG

EPA Level 4 Data Validation

EPA Level 4 data validation will be performed on the summary and raw data packages for analyses of soil and groundwater samples analyzed by EPA and non-EPA methods. All data validation procedures will be in accordance with EPA Functional Guideline requirements and industry standards.

Data Validation Elements

The QC elements to be reviewed for Level 4 validation are identified in the following subsections.

Organic Analyses

- Holding times
- Initial calibration
- Continuing calibration
- Blanks
- Surrogate recovery
- Matrix spike and matrix spike duplicate recovery
- Laboratory control sample recovery
- Internal standard performance
- Field duplicate sample analysis RPD
- Compound identification
- Compound quantitation and detection limits
- Tentatively identified compound verification (Gas Chromatograph/Mass Spectrograph [GC/MS])
- System performance
- Overall assessment of data in the SDG

Inorganic Analyses

- Holding times
- Initial calibration
- Continuing calibration
- Blanks
- Surrogate recovery
- Matrix spike recovery
- Duplicate sample RPD
- Laboratory control sample recovery
- ICP interference check
- MSA and serial dilution checks
- Field duplicate sample analysis RPD
- Analyte identification
- Analyte quantitation and detection limits
- System performance
- Overall assessment of data in the SDG

ATTACHMENT 2

DATA VALIDATION SUMMARY REPORT

Attachment 2
Data Validation Summary report

The information to be contained in a data validation summary report which will be an appendix to a site assessment report or maybe a stand alone report is as follows:

- Acronyms and Abbreviations
- Introduction
 - Purpose
 - Objective
 - Process
 - Document Organization
- Summary of samples validation including Sample Delivery Group (SDG) Identifier
- Level of validation for each SDG
- Data validation qualifier definition
- Definitions for the data validation codes
- Data validation findings
 - Holding times
 - Calibration, both initial and ongoing
 - Blank samples
 - Spike Samples
 - Surrogate spikes and tracers
 - Internal Standards
 - Duplicate samples
 - Other qualifications
- Evaluation of PARCCS parameters
 - Precision
 - Accuracy
 - Representativeness
 - Completeness
 - Comparability
 - Sensitivity
- Conclusion/Recommendations
- References
- Tabulated summaries of validated data
- Figure showing sample location
- Appendix may include
 - Data Validation Summary Worksheets as an Adobe Acrobat PDF file

Note: the following information will be typically provided in a separate appendix in a site assessment report or data submittal

- Laboratory reports as an Adobe Acrobat PDF file
- Data Validation Packages as an Adobe Acrobat PDF file
- Database update, only data provided with that phase of work will be provided to NDEP on a CD-ROM as a Microsoft Access database

July 5, 2006

Mr. Joe Kelly
Montrose Chemical Corporation of California
600 Ericksen Avenue NE, Suite 380
Bainbridge Island, Washington 98110

**RE: Nevada Division of Environmental Protection Response to:
Revised Data Validation Program, Supplemental Soil and Groundwater Programs
Dated June 28, 2006
NDEP Facility ID # H-000540**

Dear Mr. Kelly:

The Nevada Division of Environmental Protection (NDEP) has reviewed the above referenced report and provides comments below.

1. Montrose indicates that the approach outlined in the memorandum is for the supplemental soil and groundwater sampling workplans. It was the understanding of the NDEP that this approach would be applied to all future work. Please clarify if this expectation is inaccurate.
2. Regarding historical data it was the understanding of the NDEP that Montrose would attempt to validate the data according to the same protocol as new data. Lack of documentation for some of the historical data may make this impossible. It was the expectation of the NDEP that the historical data would be validated to the highest level possible (but not to exceed the protocols outlined in the memorandum). It is the expectation of the NDEP that "special cases" will be discussed with the NDEP. Please clarify if this expectation is inaccurate.

Should you have any questions, please do not hesitate to contact me.

Sincerely,

Brian A. Rakvica, P.E.
Supervisor, Special Projects Branch
Bureau of Corrective Actions

BAR:s

cc: Jim Najima, NDEP, BCA, Carson City
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