



environmental management, inc.

January 18, 2011

Shannon Harbour, P.E.
Nevada Division of Environmental Protection
901 South Stewart Street
Carson City, Nevada 89701

Subject: ECA Quarterly Activity Report – Fourth Quarter 2010
Tronox LLC, NDEP Facility ID # H-000539

Dear Ms. Harbour:

Pursuant to Section XIII of the Consent Agreement, signed September 5, 1996, between Nevada Division of Environmental Protection (NDEP) and Tronox LLC (Tronox), Tronox is required to submit quarterly status reports for the Henderson facility's Environmental Conditions Assessment (ECA). However, during this very active time we are submitting activity reports on a monthly basis. The previously submitted reports for October, November and December 2010 are attached here and collectively function as the Consent Order required quarterly report.

Please feel free to call me at (702) 592-7727 if you have any questions regarding this information. Thank you.

Sincerely,

A handwritten signature in blue ink that reads 'Susan M. Crowley'.

Susan M. Crowley,
Project C.E.M.

A handwritten signature in blue ink that reads 'Deni Chambers'.

Deni Chambers, C.E.M.
Principal-in-Charge

Federal Express

CC: Shannon Harbour, NDEP

Electronic Copy

CC: Shannon Harbour, NDEP
William Knight, NDEP
Jim Najima, NDEP
Greg Lovato, NDEP
Kelly Black, Neptune
Paul Black, Neptune
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Teri Copeland, Neptune
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Joanna Otani-Fehling, Neptune
Kurt Fehling, The Fehling Group
Joe McGinley, McGinley & Associates
Brian Rakvica, McGinley & Associates
Roy Widmann, Tronox
Keith Bailey, Environmental Answers
Susan Crowley, Crowley Environmental
Ed Krish
Deni Chambers, Northgate
Derrick Willis, Northgate
Cindy Arnold, Northgate
Dara Donnelly, Northgate
Josh Otis, Northgate
Matt Paque, Tronox Counsel
Roy Widmann, Tronox
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Lee Erickson, Stauffer
Michael Skromyda, Tronox
Tom McDaniels, Veolia
Joe Kelley, Montrose
Paul Sundberg, Montrose
Curt Richards, Olin
Michael Belotti, Olin
Ken Baker, Chartis
Julie Diebenow, Chartis
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Brenda Pohlmann, COH
Barry Conaty, COH Counsel
Mark Paris, BMI
Lynne Preslo, Montrose
Brian Waggle, Montrose
Mitch Kaplan, EPA
Victoria Tyson, Timet
Craig Wilkinson, Timet
Nick Pogoncheff, Stauffer
Barry Giroux, GEI
Jeff Gibson, AmPac
Kirk Stowers, Broadbent
Ranajit Sahu, BMI
George Crouse, Syngenta
Joel Mack, Montrose Counsel



From: Deni Chambers, Principal-in-Charge **Date:** November 5, 2010

To: Shannon Harbour, PE
Nevada Division of Environmental Protection (NDEP)

RE: Environmental Conditions Assessment, Groundwater Treatment and Capture Zone
Evaluation Monthly Status Memorandum and Schedule Update,
October 2010, Tronox Facility, Henderson, Nevada

**Activities Completed During Last Period
October 2010**

PHASE B ECA PROGRAM

Deliverables

- *Status Update Regarding the Identification of Proposed Environmental Covenant Areas*, dated and submitted October 1, 2010
- *Setback Update* (email), dated and submitted October 4, 2010
- CCC/ECA Schedule Update and Monthly Summary Report, dated and submitted October 5, 2010
- *Errata to Figure 1 RZ-B Excavation Areas and Nature and Extent of Contamination*, dated and submitted October 6, 2010
- *Environmental Covenants, Institutional and Engineering Control Plan*, dated and submitted October 6, 2010
- *Errata to Data Validation Summary Report, Pre-Confirmation Sampling RZ-E*, dated and submitted October 11, 2010
- *Status of Revised Excavation Plan for Phase B Soil Remediation of RZ-E*, dated and submitted October 11, 2010
- Revised RZ-C Figures 2a, 2b, 2c, dated and submitted October 12, 2010
- ECA Quarterly Activity Report – Third Quarter 2010, dated and submitted October 15, 2010
- *Response to NDEP Response to: TRX Letter RE: Status of Excavation Plan for Phase B Soil Remediation of RZ-E*, dated and submitted October 18, 2010
- *Response to Comments on Revised RZ-D Excavation Plan & Errata*, dated and submitted October 18, 2010
- *Revised Engineering Evaluation of Slope Stability, WC and GW-11 Pond Embankments*, dated and submitted October 18, 2010
- *Letter Response to Nevada Division of Environmental Protection (NDEP) Response to Tronox Remediation Program Schedule*, dated and submitted October 20, 2010

Meetings

- NDEP-TRX-NGEM WebEx - RZ-C Excavation Plan Figures, October 15, 2010

Field Activities

- Final Phase of preconfirmation sampling
- Remediation Zone D Excavation, Transportation, and Disposal
- Remediation Zone B Excavation, Transportation, and Disposal



LEACHING/GROUNDWATER PROGRAM

Deliverables

- *Interim Approach for Unsaturated Zone Soil Remediation and Revised Soil Flushing Report*, dated and submitted October 8, 2010
- *Work Plan to Conduct In-Situ Permeable Reactive Barrier Pilot Test For Perchlorate-Impacted Groundwater*, dated and submitted October 25, 2010
- *Technical Memorandum: Hydrogeologic Groundwater Model Inputs*, dated and submitted October 29, 2010

Meetings

- November 2nd: Conference call with Northgate, Tronox, NDEP to discuss comments on *Revised Work Plan to Evaluate In Situ Soil Flushing of Perchlorate-Impacted Soil* dated October 8, 2010

Field Activities

- Connected pumping wells downgradient of barrier wall to GWETS and began extracting groundwater from “dead zone”.
- Properly abandoned monitoring wells in conflict with soil excavation areas

GROUNDWATER SYSTEM OMM

Deliverables

- Submitted 3rd Quarter GW11 DMR – NEV2001515, October 27, 2010
- Submitted 3rd Quarter NPDS DMR – NV0023060, October 27, 2010

Field Activities

- Monthly groundwater monitoring
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**Activities to be Completed During Next Period
November 2010 (and anticipated submittal dates)**

PHASE B ECA PROGRAM

Deliverables

- RZ-E Excavation Plan (November 3)
- Monthly Report and Schedule Update (November 5)
- RZ-C Excavation Plan Response to Comments (November 6)
- Addendum to Slope Stability memo (November 9)
- Revised Indoor Air Quality report (November 15)
- Parcels A/B Soil Gas Risk Assessment (November 15)
- Revised Environmental Covenants (November 19)
- Site-Wide Soil Gas Risk Assessment (November 22)

Meetings

- NDEP-TRX-NGEM WebEx to discuss RZ-E Excavation Plan (scheduled for November 9)

Field Activities

- Remediation Zone D Excavation, Transportation, and Disposal
- Remediation Zone B Excavation, Transportation, and Disposal
- Remediation Zone C Excavation, Transportation, and Disposal
- Remediation Zone E Excavation, Transportation, and Disposal

LEACHING/GROUNDWATER PROGRAM

Deliverables

- Flushing Work Plan Addendum (November 10)

Meetings

- November 2nd: Conference call with Northgate, Tronox, NDEP to discuss comments on *Revised Work Plan to Evaluate In Situ Soil Flushing of Perchlorate-Impacted Soil*

Field Activities

- Soil sampling and laboratory bench-scale studies for In-Situ PRB work
- Monitoring and leachate well installation, drip line installation, and soil and groundwater sampling for soil flushing pilot test.

GROUNDWATER SYSTEM OMM

- 4th quarter groundwater monitoring event
- Begin electrical and plumbing work to connect additional Interceptor wells to GWETS



From: Deni Chambers, Principal-in-Charge
Derrick Willis, Project Manager
Josh Otis, Project Manager

Date: December 6, 2010

To: Shannon Harbour, PE
Nevada Division of Environmental Protection (NDEP)

RE: Environmental Conditions Assessment, Groundwater Treatment and Capture Zone Evaluation Monthly Status Memorandum and Schedule Update, November 2010, Tronox Facility, Henderson, Nevada

**Activities Completed During Last Period
November 2010**

PHASE B ECA PROGRAM

Deliverables

- *Excavation Plan for Phase B Soil Remediation of RZ-E*, dated and submitted November 3, 2010
- Response to NDEP's July 27, 2010 Comments on *Excavation Plan for Phase B Soil Remediation of RZ-E*, dated and submitted November 3, 2010
- Errata pages to *Excavation Plan for Phase B Soil Remediation of RZ-E*, dated and submitted November 4, 2010
- *Environmental Conditions Assessment, Groundwater Treatment and Capture Zone Evaluation Monthly Status Memorandum and Schedule Update, October 2010*, dated and submitted November 5, 2010
- Response to NDEP's October 25, 2010 comments on *Revised Excavation Plan for Phase B Soil Remediation of RZ-C*, dated and submitted November 5, 2010
- Response to Comments on *Revised Engineering Evaluation of Slope Stability, WC and GW-11 Pond Embankments, Phase B Soil Remediation of RZ-D*, dated and submitted November 5, 2010
- Errata and Response to NDEP's November 1, 2010 Comments on *Spring 2010 Indoor Air Quality Sampling and Analysis Report*, dated and submitted November 10, 2010
- Errata to the *Removal Action Work Plan for Phase B Soil Remediation of Remediation Zones RZ-B through RZ-E*, dated and submitted November 10, 2010
- Memo: *Proposed Evaluation Procedures for Parcels C, D, F, G, H Risk Evaluation*, dated and submitted November 10, 2010
- *Revised Technical Memorandum: Screening-Level Indoor Air Health Risk Assessment for the 2008 Tronox Parcels A/B Soil Gas Investigation, BMI Industrial Complex, Clark County, Nevada*, dated and submitted November 12, 2010
- Errata Table and Figure to *Excavation Plan for Phase B Soil Remediation of RZ-E*, dated and submitted November 12, 2010
- Letter re: *RZ-D Western Property Line Cut Slope Material*, dated and submitted November 17, 2010
- *Site-Wide Soil Gas Human Health Risk Assessment*, dated November 22, 2010, submitted November 19, 2010
- *Environmental Covenants, Institutional and Engineering Control Plan* and Response to Comments, dated and submitted November 19, 2010



- Memo: *Response to Request for Description of Slope Cutting in the Vicinity of the PRP (Inlet/Outlet) Water Lines*, dated and submitted November 22, 2010
- Final Grading Plans, dated November 12, 2010, submitted November 22, 2010
- Memo: *Update to Environmental Covenants, Institutional and Engineering Control Plan*, dated and submitted November 24, 2010
- Revised RZ-B and RZ-D Figure 1, dated and submitted November 29, 2010

Meetings

- November 17, 2010 Conference Call regarding Contamination at Property Boundary
- November 19, 2010 NDEP-Trust-TRX-NGEM Remediation meeting

Field Activities

- Remediation Zone D Excavation, Transportation, and Disposal
- Remediation Zone B Excavation, Transportation, and Disposal
- Remediation Zone C Excavation, Transportation, and Disposal

LEACHING/GROUNDWATER PROGRAM

Deliverables

- *Revised Technical Memorandum: Calculation of Leaching-Based, Site-Specific Levels (LSSLs) for the Soil-to-Groundwater Pathway Using NDEP Guidance*, dated and submitted November 18, 2010
- *Response to Comments and Revised Work Plan to Evaluate In Situ Soil Flushing of Perchlorate-Impacted Soil*, dated and submitted November 12, 2010

Meetings

- November 1, 2010 Conference Call regarding Soil Flushing

Field Activities

- Monitoring extraction wells and monitoring wells downgradient of barrier wall

GROUNDWATER SYSTEM OMM

Field Activities

- 4th Quarter groundwater monitoring event, November 1 -12, 2010
 - NTP, groundbreaking for electrical upgrade and Interceptor well hook-ups
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**Activities to be Completed During Next Period
December 2010 (and anticipated submittal dates)**

PHASE B ECA PROGRAM

Deliverables

- Response to NDEP's Comments and Revised PRP Water Lines Memo (December 2)
- Response to NDEP's Comments on RZ-E Excavation Plan (December 7)
- Revised RZ-D Cut Slope Material Memo (December 8)
- Parcels CDFHG Health Risk Assessment (December 10)
- Risk Management Plan (December 10)
- RZ-B Health Risk Assessment Data Table (December 31)
- RZ-D Health Risk Assessment Data Table (December 31)

Meetings

- Conference call regarding survey markers associated with EC/ICs (December 2, 2010)
- Conference call to discuss Environmental Covenant Document (December 6, 2010)

Field Activities

- Remediation Zone D Excavation, Transportation, and Disposal (visually impacted areas only)
- Remediation Zone D Backfill
- Remediation Zone B Excavation, Transportation, Disposal, and Backfill
- Remediation Zone C Excavation, Transportation, and Disposal
- Remediation Zone E Excavation

LEACHING/GROUNDWATER PROGRAM

Deliverables

- Capture Zone Evaluation Report (December 3)
- RTC, Revised Model Inputs Memo (December 10)
- Errata to CZE Report (December 10)
- AP-5 Pond Summary Report (December 10)

Meetings

- All Parties Groundwater Meeting (December 8)

Field Activities

- Monitor extraction and monitoring wells downgradient of barrier wall
- Electrical upgrade and Interceptor well hook-ups
- Soil and groundwater sampling for In Situ Bioremediation laboratory bench-scale tests

GROUNDWATER SYSTEM OMM

- GWETS evaluation



From: Deni Chambers, Principal-in-Charge
Derrick Willis, Project Manager
Josh Otis, Project Manager

Date: January 5, 2011

To: Shannon Harbour, PE
Nevada Division of Environmental Protection (NDEP)

RE: Environmental Conditions Assessment, Groundwater Treatment and Capture Zone Evaluation Monthly Status Memorandum and Schedule Update, December 2011, Tronox Facility, Henderson, Nevada

**Activities Completed During Last Period
December 2010**

PHASE B ECA PROGRAM

Deliverables

- *Response to NDEP Comments on Technical Memorandum: Response to Request for Description of Slope Cutting in the Vicinity of the PRP (Inlet/Outlet) Water Lines, dated November 29, 2010, and NDEP-TRX-NGEM Webex to discuss Environmental Covenants and PRP Pipe Lines, December 2, 2010, dated and submitted December 2, 2010*
- *Environmental Conditions Assessment, Groundwater Treatment and Capture Zone Evaluation Monthly Status Memorandum and Schedule Update, November 2010, dated and submitted December 6, 2010*
- *Response to NDEP's November 29, 2010 Comments on Excavation Plan for Phase B Soil Remediation of RZ-E, dated November 3, 2010; Errata pages for RZ-E Excavation Plan, dated November 4, 2010; Conference Call Minutes, dated November 9, 2010; and Errata to RZ-E Excavation Plan: Figure 1 and Table 1; dated November 15, 2010, dated and submitted December 7, 2010*
- *Response to NDEP's November 30, 2010 Comments on RZ-D Western Property Line Cut Slope Material, dated November 17, 2010, dated and submitted December 7, 2010*
- *Response to Nevada Division of Environmental Protection Request for Data for Review of Mn Tails Excavation Plan, email dated December 16, 2010, dated and submitted December 10, 2010*
- *Response to NDEP letter RE: Pond AP-5, dated November 30, 2010, dated and submitted December 10, 2010*
- *Closure and Post-Remediation Screening Health Risk Assessment Report for Parcels C, D, F, G, and H, dated and submitted December 10, 2010*
- *Memorandum: Subsurface Demarcation of Residual Contaminated Soil, dated and submitted December 15, 2010*
- *Memorandum: Remediation Zone C Excavation of Perchlorate-Impacted Soils, dated and submitted December 16, 2010*
- *Memorandum: Remediation Zone E VOC and Asbestos, dated and submitted December 17, 2010*

- *Environmental Risk Management Plan*, dated and submitted December 20, 2010
- *RZ-B and RZ-D Data Tables*, dated and submitted December 29, 2010

Field Activities

- Remediation Zone D Excavation, Transportation, and Disposal
- Remediation Zone B Excavation, Transportation, and Disposal
- Remediation Zone C Excavation, Transportation, and Disposal
- Remediation Zone E Excavation, Transportation, and Disposal

LEACHING/GROUNDWATER PROGRAM

Deliverables

- *Capture Zone Evaluation Report*, dated and submitted December 3, 2010
- *Revised Capture Zone Evaluation Report*, dated and submitted December 10, 2010
- *Response to Nevada Division of Environmental Protection (NDEP) letter dated November 30, 2010: Re AP-5 dated December 10, 2010*

Meetings

- All Companies Groundwater Meeting, December 8, 2010: It was noted that groundwater remedial action study (RAS) decisions are targeted for 2011.

Field Activities

- Monitoring extraction wells and monitoring wells downgradient of barrier wall
- Installing pumps and piping for extraction wells I-W, I-X, I-Y, I-AA, I-AB, I-AC, and I-AD at the Interceptor Well Field
- Soil and groundwater sampling for in situ bioremediation laboratory bench-scale tests

GROUNDWATER SYSTEM OMM

Field Activities

- Monthly groundwater monitoring for December, 2010
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**Activities to be Completed During Next Period
January 2011 (and anticipated submittal dates)**

PHASE B ECA PROGRAM

Deliverables

- Response to NDEP's Request for information regarding status of remedial activities for each Polygon (January 5)
- Data Validation Summary Tables (January 18)

Meetings

- Conference call regarding status of remedial activities in each polygon (January 4, 2010)
- Meeting to discuss contracts and work scope moving forward after effective date (January 10, 2010)

Field Activities

- Remediation Zone D Excavation, Transportation, and Disposal (visually impacted areas, revised excavation areas, and utility corridors within pond embankments only).
- Remediation Zone D Backfill
- Remediation Zone B Excavation, Transportation, Disposal, and Backfill
- Remediation Zone C Excavation, Transportation, Disposal, and Backfill (includes visually impacted areas)
- Remediation Zone E ACM Abatement
- Remediation Zone E Excavation, Transportation, Disposal, and Backfill (includes visually impacted areas)

LEACHING/GROUNDWATER PROGRAM

Deliverables

- Underground Injection Control semiannual submittal (January 28)
- Discharge Monitoring Reports (DMRs) (January 28)
- Groundwater treatment plant and pipeline optimization study (January 31)

Meetings

- Discussions with NDEP and the Trust regarding groundwater remedial strategy and system optimization.

Field Activities

- Complete electrical upgrade and Interceptor well hook-ups
- Schedule and permit installation of UMCf well cluster near Mn-Tailings remediation area
- Initiate installation of pump, plumbing to connect extraction well PC-150 to Athens Road Well Field.
- Complete in situ bioremediation laboratory bench-scale testing

GROUNDWATER SYSTEM OMM

- GWETS evaluation
- Monthly groundwater monitoring for January 2011

