



C3-063-00026 (8)

RECEIVED

JUNE MAY 10 2011

ENVIRONMENTAL REMEDIATION

June 8, 2011

APPROVED WITH COMMENTS
DATE(S) September 7, 2011

ENT-LTR-7011-62

Stuart Aller
Environmental Scientist
Restoration & Long-Term Stewardship Unit
Kansas Department of Health and Environment
1000 Southwest Jackson St., Suite 410
Topeka, KS 66612-1367

**Re: Summary Report for 8-Acre Cap and Site Problem Areas
National Zinc Company Site, Montgomery County, Kansas
KDHE Project #C3-063-00026
Consent Order: 03-E-0022**

Dear Stuart:

This report summarizes the work performed on the above-mentioned site during April and May 2011 on the 8-Acre Cap and other areas of concern at the Former National Zinc Smelter Site, Cherryvale, Kansas. This report is submitted by ENTACT on behalf of both, United States Steel Corporation and Citigroup Global Market Holdings, Inc (Respondents). The Proposed Grading Plan of the 8-Acre Cap dated November 18, 2010 was designed to address deficiencies in the 8-Acre Cap area at the Former National Zinc Smelter Site, Cherryvale, Kansas. Site problem areas were summarized in the Respondents' response dated November 24, 2010 and April 8, 2011 to your letter of October 26, 2010 (copies attached). Areas noted in your letter dated April 5, 2011 were also addressed during the 8-Acre Cap repair. Copies of KDHE and Respondents, referenced letters are provided in Attachment 1.

8-Acre Cap Area

The Proposed Grading Plan dated November 18, 2010 addressed deficiencies in cover thickness identified in both the September 8, 2010 investigation and the previous August 23, 2007 investigation of the 8-Acre Cap to meet the required 18-inch cover thickness (12-inches clay and 6 inches topsoil) standard deemed acceptable by the KDHE. It also addressed re-grading the drainage swale to effectively manage stormwater run-off from the 8-Acre Cap to eliminate ponding at the Site as shown in the Grading Plan Drawing. Photographs of site activities are presented in Attachment 2.

Following completion of mobilization and site preparation activities, the coordinate grid system of 100 foot by 100 foot grids and locations of previous soil borings outside the drainage swale were staked by the licensed surveyor. Trenches were excavated in grids 159, 166, 303, 174, 299 and 296 and at soil borings H166-1, H166-2, BH303-3, BH303-1, BH299-1 and BH299-2. One additional trench was dug east of BH303-3 and named BH303-3A. Trench locations are shown on Figure 1. The top of waste was surveyed at each trench location. Filling and grading

activities were conducted on the 8-Acre Cap area outside of the drainage swale after determining fill elevations to achieve the minimum cover thickness of 18 inches as shown on Figure 1. Clean soils were imported from the approved borrow source and placed in the deficient areas. The fill material was graded and compacted by several passes of heavy equipment to achieve the minimum cover thickness and promote positive drainage.

Soils in the 8-Acre Cap drainage swale were excavated using a backhoe and began approximately forty feet north of borehole S10 (point number 3800) as shown on Figure 1, at the upgradient end of the drainage swale and progressed in the direction of ephemeral stormwater flow. Due to weather constraints, excavation proceeded in sections to eliminate the potential for stormwater infiltration and runoff. Top of waste elevations were surveyed within the excavation by the licensed surveyor as depicted on Figure 1. During backfill activities, finish grade of the drainage swale was staked by the surveyor to achieve cover thickness and proper drainage. Hay bales were installed at downgradient topographic locations during construction activities where needed.

During excavation, clean cover soils were removed and stockpiled along the west edge of the excavation for re-use as part of grading activities. Impacted soils were transported to the EPA repository and placed in the temporary stockpile area. After stockpiling the material and covering with poly sheeting, a clean clay berm was placed along the perimeter of the stockpile as shown in Photo 23 of the attached Photo Log. The stockpile was covered using heavy plastic sheeting, secured in place at the edges and central points with clean soil. Six millimeter poly plastic sheeting was used to cover impacted soils and protect the stockpile.

In accordance with the KDHE-approved CQP, one in-situ hydraulic conductivity test (conforming to ASTM D698) was taken on the clay layer consistent with the approved frequency (one test per 10 acres) to ensure the project permeability specification is achieved. The hydraulic conductivity result is $2.9e-8$ cm/second. The laboratory report containing results is provided in Attachment 3 to this letter.

Once the proposed elevations were achieved in the 8-Acre Cap area, the disturbed areas were re-seeded and mulched following previously approved National Resource Conservation Service (NRCS) recommendations.

Rip rap was placed in the bottom of the 8-Acre Cap swale for the first 500 feet to the north from where it ties into the south drainage channel at the elevation of 805 as shown in the asbuilt drawing (Figure 1).

Erosion Repairs and Vegetation Problem Areas

The local NRCS representative visited the site on April 26, 2011 to inspect the established vegetation of the 8-Acre Cap and east to the EPA Repository. The NRCS agent was satisfied with the native grass stand on-site from the work performed in 2009. Of the native grass seed

mix recommended in 2009, all species of native grasses were identified by the NRCS agent. The agent recommended that areas of concern with sparse vegetation would benefit from mowing the vegetation to remove established clover species because the native grasses are being out-competed by the clover. Another recommendation is that fertilizer is not added to areas with native seed mix. To address areas with poor vegetation, it was suggested that topsoil be added to the areas, re-drilled with the native seed mix and mulched. Problem areas of the site that were barren of vegetation were reseeded and mulched after the placement of topsoil as recommended.

Several areas onsite required repairs due to erosion or poor vegetative growth. Erosion and inadequate vegetation growth have been routinely observed in the area north of the south drainage channel (Area A of Figure 2) although the area has been re-seeded multiple times. Soil was imported from the borrow source to this area to repair rills and grade the area to reduce the slope from the Onsite Disposal Area (ODA) to the southern drainage channel. It was determined to place topsoil in this area to increase the organic content of the soil to allow for vegetative growth. Following grading activities, the area was drill seeded with the native grass seed mixture previously recommended by the NRCS Representative. This area was also drill seeded with an annual rye grass to quickly establish vegetative growth in the area to prevent erosion from occurring before the native seed has time to establish. Temporary erosion control measures in the form of hay bales were placed along approximately 300 feet of disturbed area along the fence between the ODA and the south drainage swale and will remain in place until the vegetation is adequately established.

Two areas in the south portion of the 8-Acre Cap had not grown vegetation in previous attempts (Area B, Figure 2). The top four inches of soil in these two areas was excavated and placed in the temporary stockpile area. Topsoil was placed on these areas, graded, re-seeded and mulched in concurrence with the 8-Acre Cap repairs.

Erosion along the north and west slopes of the ODA was addressed during the 8-Acre Cap repair (Area C and D respectively, Figure 2). Three areas along the western slope of the ODA and one area along the north slope of the ODA had significant erosional rills. Soil was imported from the offsite borrow source, placed and compacted in the areas with rill erosion. The areas were then re-seeded and mulched. Silt fence was re-installed along the slopes of the ODA where it had come down.

Standing water was prevalent in the Wedge Area and along the fenceline where surface water drained from the southeast corner of the EPA Repository (Area E, Figure 2). The existing soil was graded to allow the standing water to drain. When the area was dry enough to proceed, soil was imported to fill the area and graded to allow sheet flow from the EPA Repository to continue to drain to the southeast. After grading activities were complete, the Wedge area was re-seeded and mulched.

The gabion basket installation of the Catchment Dike System (CDS) installed in the fall of 2010, appears to be working well. As noted in the Respondents letter dated April 8, 2011, the upstream dike of the CDS located in Drum Creek was in need of minor repair. During the current mobilization, the upstream dike was repaired and tied into the western bank of Drum Creek. Three gabion baskets were installed along the west bank of the upstream dike and filled the previously approved rip rap source having a predominant size of 6.5 inches (average 4 inches).

Prior to the installation of the gabions, loose material and all foreign matter were removed from the creek bed. The gabions were carefully filled with rock, by machine and hand methods, maintaining alignment, avoiding bulges, and providing a compact mass that minimizes voids. Basket lids were stretched tight over the rock until it met the perimeter edges of the front and end panels and secured. Gabion walls were re-constructed to coincide with the top elevations of the dike and tied into the slope of Drum Creek. Reclaimed rip rap was utilized to fill in the void spaces between the toe of the reconstructed dike and the face of the gabion reinforcement wall.

The Respondents' follow-up site work at Cherryvale is now complete. In discussions with Wade Webber with the City of Cherryvale, Wade stated that he is satisfied with the work performed at the site this spring, and that the City of Cherryvale will be responsible for all further site O&M and vegetation/seeding going forward, except for the Wet Area. See confirming email to Wade Webber dated May 10, 2011 provided in Attachment 1. The City of Cherryvale will continue monthly inspections through the summer and fall, and then less frequently thereafter in accordance with the Interim O&M Plan.

Please feel free to contact myself or Mike Stoub at 630.986.2900 if you have any questions or concerns.

Respectfully,



Rhonda Regester
ENTACT, LLC

Enclosures

Cc:

Deanna Ross, KDHE (via email)
Paul Marx, KDHE (via email)
Mike Stoub, ENTACT (via email)
Greg McDanel, City of Cherryvale (via email)
Wade Webber, City of Cherryvale (via email)

Teresa Woody, Counsel for City of Cherryvale (via email)

Andrew Thiros, U.S. Steel (via email)

Mark Rupnow, U.S. Steel (via email)

Jeff Rey, U.S. Steel (via email)

Preston Turner, CitiGroup (via email)

Vance Krebs, CitiGroup (via email)

Mark Landress, Project Navigator (via email)

Poor vegetation was prevalent in two areas northwest of the EPA Repository (Area F, Figure 2) and at the gate located on the east side of the ODA (Area G, Figure 2). Topsoil was imported to these locations, graded to achieve positive drainage, re-seeded and mulched.

East of the SKO Railroad, in the drainage area of the east portion of the site, areas of poor vegetation and erosion were present as described in your letter dated April 5, 2011 (Area H, Figure 2). This area has been restored by re-grading and re-seeding with both the native and annual seed mix. The area was mulched after re-seeding activities.

Additional Rip-Rap Placement

All areas with erosion and poor vegetation were appropriately addressed during the 8-Acre Cap repair work.

Erosion repairs north of the southern drainage swale (Area A of Figure 2) were made using rip rap and soil import. Rip rap was installed along the south drainage channel's northern slope to reduce washouts and scouring of vegetation where sheet flow and channeling of water had previously occurred from the ODA. Rip rap was installed along the northern slope of the south drainage swale from the low water crossing to the area of existing flowable fill with 8 ounce non-woven fabric placed beneath the rip rap armor as depicted in Area A of Figure 2.

After conferring with the City of Cherryvale, it was determined to place rip-rap from the low-water crossing to the south gate of the ODA to serve as a road and water break. The rip rap serves as a water break for sheet flow running across the area from the ODA to the south drainage channel. A small swale lined with rip rap was placed from the road to the south drainage channel to convey water and to prevent washouts and scouring of the vegetation. These improvements are shown in Area A of Figure 2. Hay bales were set along the inside of the ODA fence to divert water and help prevent erosion of the area.

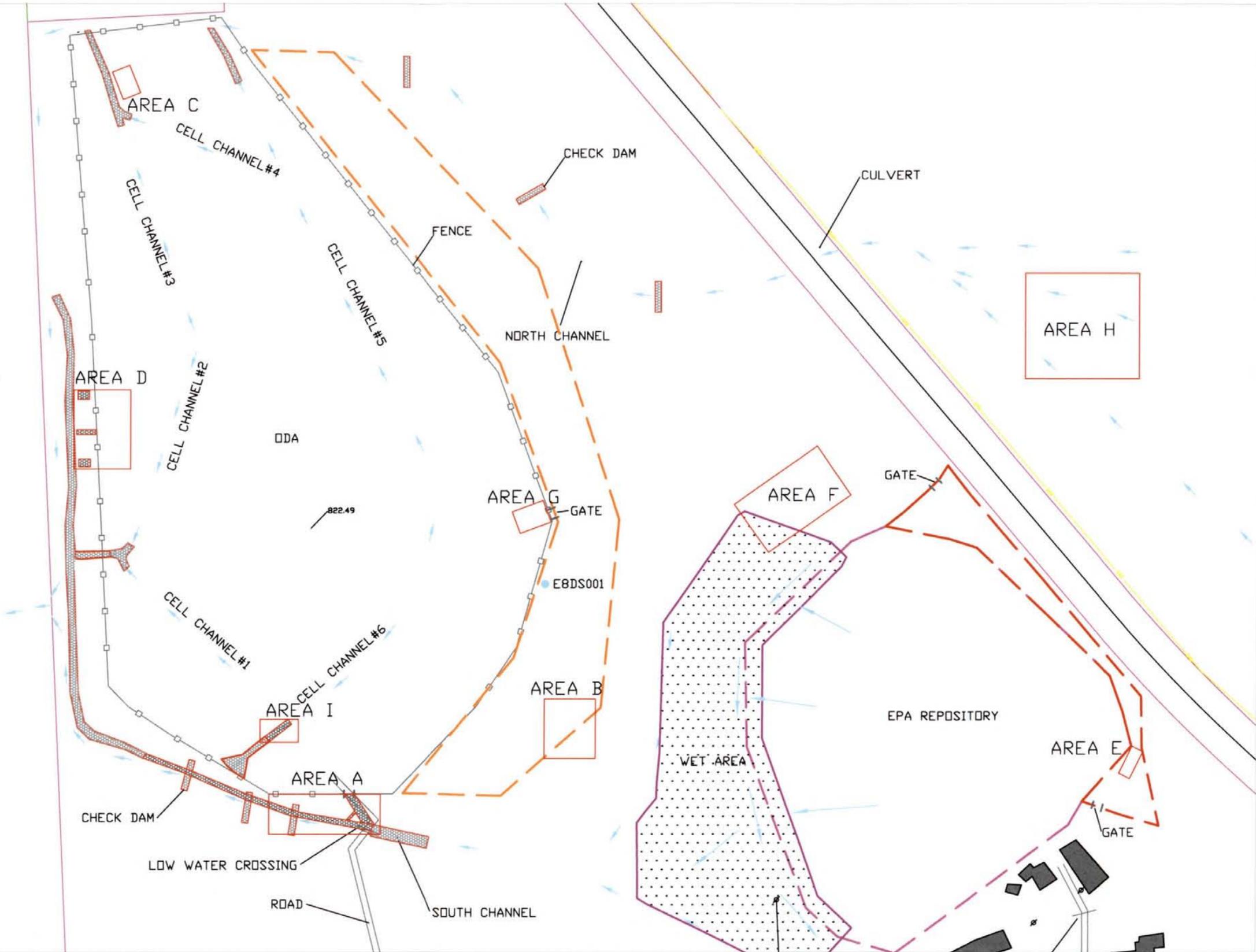
Rip rap was also placed in three places in Area D of Figure 2 along the western slope of the ODA where continued rill formation has occurred. Soil was placed in the eroded areas and compacted prior to placement of rip rap to prevent erosion from continually occurring. In one area along the southwest slope of the ODA where the slope meets the southern drainage channel (Area I, Figure 2), minor erosion had occurred despite erosion control measures in the form of in place hay bales. Prior to rip rap placement, soils were graded and 8 ounce non-woven fabric was placed in the restored area. All three areas were located outside of the fence leading from the ODA to the drainage swale.

Additional rip rap was placed in the existing drainage swale (cell channel #6) along the southern slope of the ODA (Area J, Figure 2). Rip rap was extended upgradient of existing armor within the swale where erosion had occurred.

Catchment Dike System Repairs

LEGEND

-  805 Final Site Grade Contours
-  Boundary Line
-  Access Road
-  Wet Area
-  Approx. 8 Acre Area
-  Sliver and Wedge Area
-  Stormwater Flow Direction
-  Rip Rap Locations (approximate)
-  Field Hydraulic Conductivity test collected on 5/10/11
-  AREA A Area of Erosion and Vegetation Repairs
-  Extent of Erosion and Vegetation Repairs (approximate)



ENTACT, LLC 1010 EXECUTIVE COURT, SUITE 200 WESTMONT, ILLINOIS 60550 P: 630-330-8237 F: 630-988-0853		FORMER NATIONAL ZINC SMELTER CHERRYVALE, KANSAS			
ENTACT		8-Acre Cap Repair Areas			
DESIGNED BY	JW	8/1/07	CHECKED BY	RR	06/03/11
DRAWN BY	RR	01/07/11	APPROVED BY	MS	06/03/11
SCALE:	PROJECT NO.	DRAWING NO.	REVISION NO.		
HZ=1"=200'	C7011	2	1		
REVISIONS	NO				

ATTACHMENT 1
CORRESPONDENCE



Mark Parkinson, Governor
Roderick L. Bremby, Secretary

DEPARTMENT OF HEALTH
AND ENVIRONMENT

www.kdheks.gov

Division of Environment

October 26, 2010

Mike Stoub
Entact
1010 Executive Ct., Suite 280
Westmont, IL 60559

Jeffrey L. Rey
United States Steel Corp.
Gary Works-MS HB5
One N Broadway
Gary, IN 46402-3199

Wade Webber
City of Cherryvale
123 W Main St.
Cherryvale, KS 67335

RE: Site Problem Areas
National Zinc Company Site, Montgomery County, Kansas
KDHE Project #C3-063-00026 Consent Order Case #03-E-0022

Gentlemen.

On October 13, 2010, the Kansas Department of Health and Environment/Bureau of Environmental Remediation (KDHE/BER) conducted an inspection at the former National Zinc Smelter Site in Cherryvale, Kansas. Those in attendance from KDHE/BER included Rick Bean, Paul Marx and Stuart Aller along with City of Cherryvale (City) representatives, Greg McDanel and Wade Webber. In addition to the pending items, KDHE/BER observed and documented several problems during the inspection that require mitigation. To help document the problems noted during the inspection, KDHE/BER has included *Figure 1* (locations of problem areas and photographs) with an accompanying photo documentation log of past and recent inspections for your review.

These particular problems continue to be observed and reported in the monthly Interim Operation & Maintenance (O&M) inspection reports. If left unfixed, these problems will further degrade and compromise the Removal Action conducted at the Site. KDHE/BER requests the following.

- 1) Place rip rap along southern drainage, – Inadequate vegetation and erosion are routinely noted north of the southern drainage swale where rip rap is not present between the low

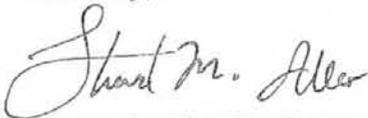
BUREAU OF ENVIRONMENTAL REMEDIATION
CURTIS STATE OFFICE BUILDING, 1000 SW JACKSON ST., STE. 410, TOPEKA, KS 66612-1367
Voice 785-296-1673 Fax 785-296-7030

water crossing and the southwest bank of the On-Site Disposal Area (ODA) Multiple reseeded efforts have been unsuccessful in establishing an adequate stand of vegetation. Refer to *Figure 1* and *Photo 1* Therefore, KDHE/BER requests that rip rap be placed along the southern drainage's northern slope (Refer to *Figure 1*) to reduce washouts and scouring of vegetation.

- 2) Revegetate bare spots within 8-Acre Cap Area, – Spots barren of vegetation are routinely noted within the 8-Acre Cap Area. Several attempts at reseeding these areas have been to no avail Refer to *Figure 1* and *Photo 2* As noted in post-Removal Action documents, the existing cover and vegetation on the 8-Acre Cap Area were left intact and not supplemented. However, this area is a capped structure that must have an effective vegetative cover as required of other capped areas at the Site. Therefore, KDHE/BER requests that necessary supplements or additional top soil be provided to augment reseeding efforts.
- 3) Revegetate areas with inadequate vegetation, – Areas with sparse or deadened vegetation are routinely noted throughout the Site, most of which were drilled to seed in May 2009 by ENTACT Again, subsequent attempts at reseeding these areas have been to no avail. Refer to *Figure 1* and *Photo 3* KDHE/BER requests necessary supplements or additional top soil be provided to augment reseeding efforts.
- 4) Alleviate ponding in southern drainage channel, – Ponding is routinely noted in the southern drainage channel southeast of the ODA even though Site drainages are cleared of obstructions. Refer to *Figure 1* and *Photo 4* KDHE/BER requests the storm water drainage channel grading design be reevaluated and appropriate corrective measures be implemented to ensure the drainage channel functions properly

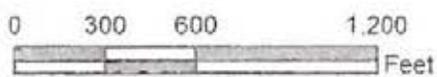
KDHE/BER notes long-term O&M of these problem areas will be impracticable unless augmented. Appropriate corrective measures to alleviate the problems must be implemented during the next field activity (i.e. 8-Acre Cap Area mitigation) Please contact me by telephone at 785-291-3807 or by e-mail at SAller@kdheks.gov if you have any questions concerning this letter

Sincerely,



Stuart M. Aller, Environmental Scientist
Restoration & Long-Term Stewardship Unit
Bureau of Environmental Remediation

- c Deanna Ross>Rick Bean>National Zinc Company file>C3-063-00026 (1)
Paul Marx, KDHE Legal Department
Greg McDanel, City of Cherryvale Administrator
William C. Anderson, Doerner, Saunders, Daniel & Anderson, L.L.P.
Andrew Thiros, United States Steel Corporation
Mark Rupnow, United States Steel Corporation



LEGEND

- Poor vegetation
- Erosion
- # Photo Location
- Ponding
- Proposed EUC Areas
- Unauthorized Drainage
- Needs Rip Rap

Figure 1

Site Problem Areas Map
National Zinc Smelter
Cherryvale, Kansas

Map prepared by KDHE

*Observations made during the inspection on October 13, 2010 are approximate in their depiction on this map. Not all areas of the Site were inspected and may require maintenance or repairs.

National Zinc Co.
Site Inspections
Taken by Stuart Aller



Photo 3

Date: October 13, 2010

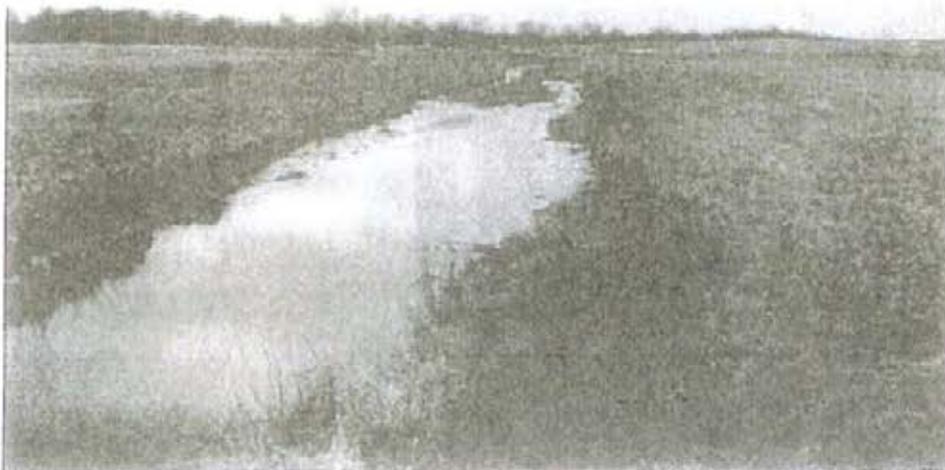
View: Northwest

Comments Area with inadequate or deadened vegetation. Photo taken just north of the EPA Repository This and other areas were seed drilled by ENTACT in May 2009

Photo 4

Date: March 17, 2010

View: Northwest



Comments Area of ponding along southern storm water drainage channel

National Zinc Co.
Site Inspections
Taken by Stuart Aller

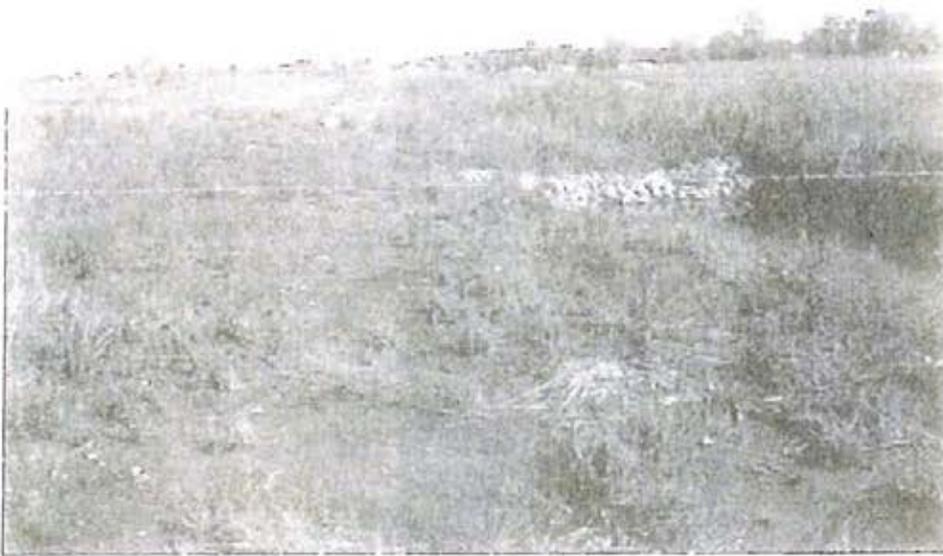


Photo 1

Date. October 11, 2010

View: East-southeast

Comments. Sparse vegetation and erosion along southern drainage where slope is not riprapped.

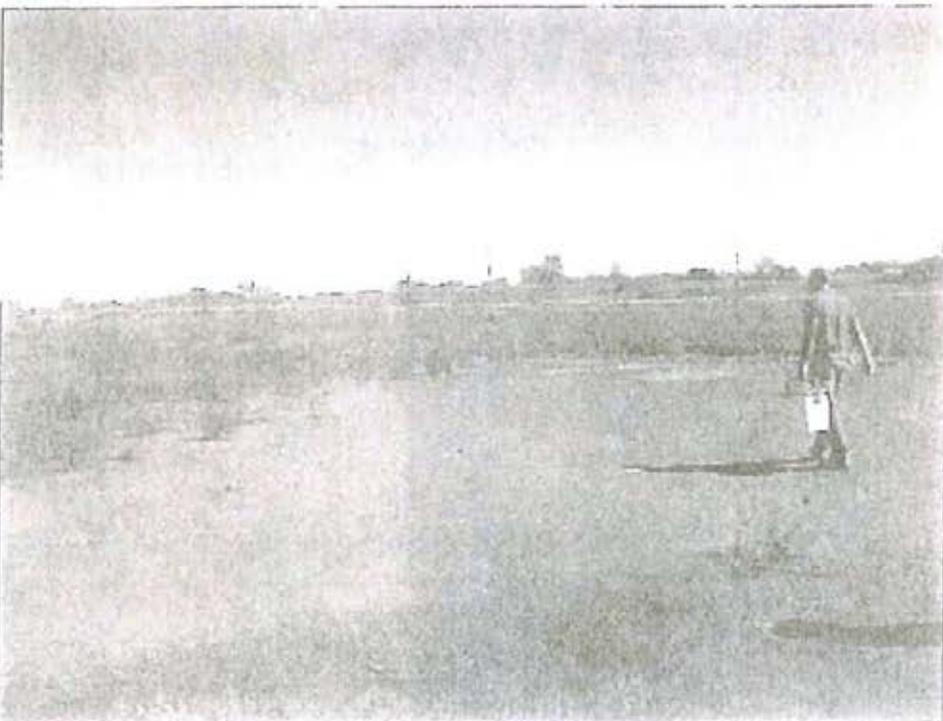


Photo 2

Date. October 13, 2010

View: East

Comments. Spot barren of vegetation routinely noted after multiple reseeding efforts.

DOERNER, SAUNDERS, DANIEL & ANDERSON, L.L.P.

ATTORNEYS AT LAW

WILLIAM C. ANDERSON

WRITER'S DIRECT:
(918) 591-5283 (telephone)
(918) 925-5283 (facsimile)
Tulsa, Oklahoma
wanderson@dsda.com

W. J. DOERNER (1897-1980)
DICKSON M. SAUNDERS (1920-2001)

November 24, 2010

VIA CERTIFIED MAIL

Mr Stuart Aller
Environmental Scientist
Restoration & Long-Term Stewardship Unit
Kansas Department of Health and Environment
1000 SW Jackson Street, Suite 410
Topeka, Kansas 66612-1367

Re Site Problem Areas
National Zinc Company Site, Montgomery County, Kansas
KDHE Project #C3-063-00026
Consent Order 03-E-0022

Dear Stuart:

This will respond to your letter of October 26, 2010 (copy attached), regarding the captioned matter. This is submitted on behalf of both Respondents.

We were not invited to be present when KDHE met with the City on October 13, 2010, to inspect the Site. We would request that if similar inspections are made with the City present in the future involving Site maintenance issues, where the relative responsibilities under the Agreement between the City and the Respondents and/or the City's Interim O&M Plan could be involved, that the Respondents be notified of the inspection date and given an opportunity to attend.

Since we were not at the October 13th inspection, the first thing we will need to do is to inspect the Site. Our present plan is that Mike Stoub from ENTACT will contact Wade Webber from the City to conduct this inspection on a joint basis, on the first day that ENTACT mobilizes to the Site to do the 8 Acre repairs. As you know, ENTACT submitted the 8 Acre repair proposal to KDHE on November 18th, and is awaiting approval from KDHE before it schedules the mobilization.

Once the inspection has been made and we can work out with the City which items in your October 26th letter are the responsibility of the Respondents and which are the responsibility of the City, it is the Respondents' plan to have ENTACT conduct the work on those items for

November 24, 2010
Page 2

which the Respondents are responsible while ENTACT is on site doing the 8 Acre repair project. As soon as Mike Stoub schedules the inspection with Wade Webber, we will notify you of the date so that you can be present if your schedule permits

Please give me a call if you have any questions.

Sincerely,



William C. Anderson of
DOERNER, SAUNDERS, DANIEL & ANDERSON, L.L.P

WCA:msr
Enclosures
cc.

Deanna Ross, KDHE (via email)
Paul Marx, KDHE (via email)
Mike Stoub, ENTACT (via email)
Greg McDanel, City of Cherryvale (via email)
Wade Webber, City of Cherryvale (via email)
Teresa Woody, Counsel for City of Cherryvale (via email)
Andrew Thiros, U.S Steel (via email)
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Jeff Rey, U.S Steel (via email)
Preston Turner, CitiGroup (via email)
Vance Krebs, CitiGroup (via email)
Mark Landress, Project Navigator (via email)

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Robert Moser, MD, Secretary

Department of Health & Environment

Sam Brownback, Governor

April 5, 2011

Rhonda Regester, P.G.
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1010 Executive Ct., Suite 280
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Jeffrey L. Rey
United States Steel Corp.
Gary Works-MS HB5
One N Broadway
Gary, IN 46402-3199

Greg McDanel
City of Cherryvale
123 W. Main St.
Cherryvale, KS 67335

**RE: Limited Site Inspection on March 29, 2011
National Zinc Company Site, Cherryvale, Kansas
KDHE Project #C3-063-00026 Consent Order Case #03-E-0022**

Dear Ms. Regester, Mr. Rey, and Mr. McDanel:

The Kansas Department of Health and Environment/Bureau of Environmental Remediation (KDHE/BER) conducted a limited site inspection prior to catchment sampling on March 29, 2011. KDHE/BER documented the field observations on the enclosed attachments. The two attachments include: *Figure 1* – figure showing the locations of observations and photographs; and the accompanying photo documentation log with pertinent comments regarding KDHE/BER's observations. Please note that KDHE/BER only had time to inspect drainage on the site's east portion, the southern drainage on the site's west portion and portions of the On-Site Disposal Area (ODA).

No response to this letter is necessary. However, KDHE/BER requires all areas with erosion and/or poor vegetation to be appropriately addressed by completion of the 8-Acre Cap Area repairs this spring. Please contact the undersigned by telephone at 785-291-3807 or by e-mail at SAller@kdheks.gov with questions concerning this letter.

Sincerely,

Stuart M. Aller, Environmental Scientist
Restoration & Long-Term Stewardship Unit
Remedial Section

c: Deanna Ross>File>National Zinc Co.>C3-063-00026 (1)
William Anderson, Doerner, Saunders, Daniel & Anderson, L.L.P.
Andrew Thiros, United States Steel Corporation
Mike Stoub, ENTACT



0 300 600 1,200 Feet



LEGEND

- Poor vegetation
- Erosion
- # Locations of Pertinent Photos
- Proposed EUC Areas
- Unauthorized Drainage
- Needs Rip Rap

Figure 1

March 29, 2011
 Site Problem Areas Map
 National Zinc Smelter
 Cherryvale, Kansas

Map prepared by KDHE

*Observations made during the inspection on March 29, 2011 are approximate in their depiction on this map. Not all areas of the Site were inspected and may require maintenance or repairs.



April 8, 2011

ENT-LTR-7011-60

Stuart Aller
Environmental Scientist
Restoration & Long-Term Stewardship Unit
Kansas Department of Health and Environment
1000 Southwest Jackson St., Suite 410
Topeka, KS 66612-1367

**Re: Site Problem Areas
National Zinc Company Site, Montgomery County, Kansas
KDHE Project #C3-063-00026
Consent Order: 03-E-0022**

Dear Stuart:

This will supplement the Respondents' response dated November 24, 2010 to your letter of October 26, 2010 (copies attached), concerning the captioned matter. This letter is submitted on behalf of both Respondents.

During the recent catchment sampling conducted March 29, 2011, I inspected the site along with Mark Landress of Project Navigator with respect to the four items discussed in your letter of October 26, 2010. Wade Webber was out of town on March 29, so it was not possible to do a joint inspection with the City.

This will summarize our findings and proposed course of action:

1. Place rip rap along southern drainage; — Inadequate vegetation and erosion are routinely noted north of the southern drainage swale where rip rap is not present between the low water crossing and the southwest bank of the On-Site Disposal Area (ODA). Multiple reseeding efforts have been unsuccessful in establishing an adequate stand of vegetation. Refer to Figure 1 and Photo 1. Therefore, KDHE/BER requests that rip rap be placed along the southern drainage's northern slope (Refer to Figure 1) to reduce washouts and scouring of vegetation.

Response: The Respondents inspected the area south of the OnSite Disposal Area (ODA), east of the low water crossing along the south drainage. Areas of poor vegetation and minor erosion rills were noted where sheet flow and channeling of water from the ODA flows across the area. The Respondents previously have seeded and repaired this area. Hay bales set up as erosion breaks to prevent a reoccurrence have not been maintained as part of the ongoing O&M, which has contributed to the inadequate vegetation and rill formation.

As a first step, it would be helpful for the City pursuant to the Interim O&M Plan to address the rill formation and restoration of hay bale water breaks, and perhaps apply some additional grass seed. Hopefully this can be done soon, before the spring rains begin.

When Respondents are on Site for implementing the 8 Acre project, they will armor the area in question with rip rap, and confer with the City as to whether installation of any additional water breaks or other Interim O&M measures would be effective.

2. Revegetate bare spots within 8-Acre Cap Area; — Spots barren of vegetation are routinely noted within the 8-Acre Cap Area. Several attempts at reseeding these areas have been to no avail. Refer to Figure 1 and Photo 2. As noted in post-Removal Action documents, the existing cover and vegetation on the 8-Acre Cap Area were left intact and not supplemented. However, this area is a capped structure that must have an effective vegetative cover as required of other capped areas at the Site. Therefore, KDHE/BER requests that necessary supplements or additional top soil be provided to augment reseeding efforts.

Response: The Respondents recognize there are areas within the 8-Acre Cap Area where seed has not taken hold, and note the area of concern identified in KDHE's October 26 letter. Respondents will address revegetation within this area as part of the upcoming 8 Acre project work.

3. Revegetate areas with inadequate vegetation; — Areas with sparse or deadened vegetation are routinely noted throughout the Site, most of which were drilled to seed in May 2009 by ENTACT. Again, subsequent attempts at reseeding these areas have been to no avail. Refer to Figure 1 and Photo 3. KDHE/BER requests necessary supplements or additional top soil be provided to augment reseeding efforts.

Response: Areas are observed within the Site with variable vegetation density that is characteristic of low permeability clay with low organic content. The areas observed are outside of the capped areas, and topsoil placement was not part of the remedial specification as these areas are clean fill. The Respondents have relied on the seed mixture recommended by the NRCS office in Independence, which stated previously that it will take several years for an adequate stand of vegetation to take hold in this type of soil. In other words, this is the nature of the vegetation that is supported in this type of soil. Routine soil conditioning by the City will assist, including addition of straw or other organic material. While vegetation may be thin, we don't believe that these areas represent a material problem since they are not eroding and do not compromise the installed remedy. During the 8 Acre project work, Respondents plan to meet with the NRCS agent and revisit the vegetation density issue to see whether, in his opinion, any seed other than the mixture he previously specified (see attached page 1 of ENTACT letter dated April 29, 2009), would be of benefit.

4. Alleviate ponding in southern drainage channel; — Ponding is routinely noted in the southern drainage channel southeast of the ODA even though Site drainages are cleared of obstructions. Refer to Figure 1 and Photo 4. KDHE/BER requests the storm water drainage

channel grading design be reevaluated and appropriate corrective measures be implemented to ensure the drainage channel functions properly.

Response: The drainage on the southern part of the Site, including the southern drainage channel southeast of the ODA, is a natural drainage feature which has a very slight grade. This area had been identified as a marshy area prior to remediation. Creeks and channels naturally develop pools which reflects conditions in the channel bottom. We believe this is a natural condition and that the southern drainage channel functions effectively as designed to convey water from the Site as well as from areas upstream and off the Site, even though drainage may be slow at times or pools may develop. It should be remembered that pooling may not be a detriment, since it can act to slow down water velocity of drainage and the erosion or water cutting that increased velocity may cause.

Respondents will inspect this area further when the 8-Acre project work is being performed. This could include additional confirmatory surveying as appropriate, since there will be a surveyor on Site during the 8-Acre project.

As noted in several paragraphs above, ENTACT plans to be on Site soon to do the 8-Acre project work, as well as the Phase I sampling work at the EPA Repository. Also there is one place where the upstream dike at the catchment needs some touch up work where it ties in to one of the banks. ENTACT currently is projecting that it will mobilize to the Site approximately the week of April 18. Please feel free to give me a call if you have any questions.

Sincerely,



Rhonda Regester
ENTACT, LLC

Enclosures

Cc:

Deanna Ross, KDHE (via email)
Paul Marx, KDHE (via email)
Mike Stoub, ENTACT (via email)
Greg McDanel, City of Cherryvale (via email)
Wade Webber, City of Cherryvale (via email)
Teresa Woody, Counsel for City of Cherryvale (via email)
Andrew Thiros, U.S. Steel (via email)

Mark Rupnow, U.S. Steel (via email)
Jeff Rey, U.S. Steel (via email)
Preston Turner, CitiGroup (via email)
Vance Krebs, CitiGroup (via email)
Mark Landress, Project Navigator (via email)

Rhonda Regester

From: Rhonda Regester
Sent: Tuesday, May 10, 2011 11:43 AM
To: Wade Webber (wwebber@cherryvaleusa.com)
Cc: 'SAller@kdheks.gov'; 'wanderson@dsda.com'; Mike Stoub
Subject: Cherryvale site work

Wade-

Per our conversation this morning, together with the discussions we had last week when Mark Landress was onsite, it's agreed that the Respondents' follow-up site work at Cherryvale will be complete with the conclusion of mulching the site, grading the 'wedge' area, and placement of hay bales at the fence line to disburse water coming from the ODA, all of which will be complete this week. As we discussed, once this work is complete, the City of Cherryvale will be responsible for all further site O&M and vegetation/seeding going forward, except for the wet area. The City will continue monthly inspections through the summer and fall, and then less frequently thereafter in accordance with the Interim O&M Plan.

As we discussed, in addition to the native grass seeding, ENTACT also seeded the disturbed areas with an annual seed to establish a stand of vegetation this year to help prevent erosion. In the City's O&M at the site, you may want to consider re-seeding the disturbed or sparsely vegetated areas with an annual seed next year. It would not cost much, and is a technique to employ if the native grass has not yet been adequately established. It may take a couple of years for the native seed to germinate sufficiently, as was stated by the NRCS agent.

In addition, haying of the site would be beneficial to the native grass species as it eliminates competition with other species. Haying of the site and the rodeo ground to the south would also provide hay bales for the City's water diversion/erosion control.

We would also like you to utilize the technique we went over while onsite to address the erosional rills on the ODA and will be available via phone to consult with you in the future.

I can be reached at this email address or the phone number below if you need to contact me.

Thanks Wade, it was nice working with you.

Rhonda Regester
ENTACT, LLC
1010 Executive Ct Ste 280
Westmont, IL 60559
630.413.9450 -p
630.986.0653 -f



ATTACHMENT 2
SITE PHOTOGRAPHS



04 19 2011 10:41

PHOTOGRAPH:	1	PHOTOGRAPHER:	RR
DATE:	19-Apr-11	TIME:	1041
PROJECT:	8-Acre Cap Repair Work Cherryvale Kansas April-May 2011		
SUBJECT:	Installation of rip rap along northern slope of southern drainage channel		



04 19 2011 19:47

PHOTOGRAPH:	2	PHOTOGRAPHER:	RR
DATE/TIME:	19-Apr-11	TIME:	1947
PROJECT:	8-Acre Cap Repair Work Cherryvale Kansas April-May 2011		
SUBJECT:	Stockpile of imported topsoil		



04.20.2011 15:00

PHOTOGRAPH:	3	PHOTOGRAPHER:	RR
DATE:	20-Apr-11	TIME:	1500
PROJECT:	8-Acre Cap Repair Work Cherryvale Kansas April-May 2011		
SUBJECT:	Removal of material in sparsely vegetated areas of southern section of 8-Acre Cap		



04.20.2011 15:00

PHOTOGRAPH:	4	PHOTOGRAPHER:	RR
DATE/TIME:	20-Apr-11	TIME:	1500
PROJECT:	8-Acre Cap Repair Work Cherryvale Kansas April-May 2011		
SUBJECT:	Grading imported topsoil of 8-Acre Cap		



PHOTOGRAPH:	5	PHOTOGRAPHER:	RR
DATE:	20-Apr-11	TIME:	1704
PROJECT:	8-Acre Cap Repair Work Cherryvale Kansas April-May 2011		
SUBJECT:	Two excavated areas of southern section of 8-Acre Cap		



PHOTOGRAPH:	6	PHOTOGRAPHER:	RR
DATE/TIME:	20-Apr-11	TIME:	1802
PROJECT:	8-Acre Cap Repair Work Cherryvale Kansas April-May 2011		
SUBJECT:	Grading restored area between ODA and southern drainage channel		



PHOTOGRAPH:	7	PHOTOGRAPHER:	RR
DATE:	21-Apr-11	TIME:	1006
PROJECT:	8-Acre Cap Repair Work Cherryvale Kansas April-May 2011		
SUBJECT:	Measurement of clean cap material over slag in 8-Acre Cap drainage swale excavation		



PHOTOGRAPH:	8	PHOTOGRAPHER:	RR
DATE/TIME:	21-Apr-11	TIME:	1038
PROJECT:	8-Acre Cap Repair Work Cherryvale Kansas April-May 2011		
SUBJECT:	Excavation of 8-Acre Cap drainage swale		



04.21.2011 11:08

PHOTOGRAPH:	9	PHOTOGRAPHER:	RR
DATE:	21-Apr-11	TIME:	1108
PROJECT:	8-Acre Cap Repair Work Cherryvale Kansas April-May 2011		
SUBJECT:	Excavation of 8-Acre Cap drainage swale		



04.28.2011 16:06

PHOTOGRAPH:	10	PHOTOGRAPHER:	RR
DATE/TIME:	28-Apr-11	TIME:	1606
PROJECT:	8-Acre Cap Repair Work Cherryvale Kansas April-May 2011		
SUBJECT:	Construction of road/stormwater drainage diversion from low-water crossing to ODA gate		



PHOTOGRAPH:	11	PHOTOGRAPHER:	RR
DATE:	28-Apr-11	TIME:	1639
PROJECT:	8-Acre Cap Repair Work Cherryvale Kansas April-May 2011		
SUBJECT:	Installation of rip rap and fabric on northern slope of southern drainage swale		



PHOTOGRAPH:	12	PHOTOGRAPHER:	RR
DATE/TIME:	28-Apr-11	TIME:	1710
PROJECT:	8-Acre Cap Repair Work Cherryvale Kansas April-May 2011		
SUBJECT:	Installation of rip rap along southwest corner of ODA where erosion continually occurs		



04 29 2011 08 37

PHOTOGRAPH:	13	PHOTOGRAPHER:	RR
DATE:	29-Apr-11	TIME:	837
PROJECT:	8-Acre Cap Repair Work Cherryvale Kansas April-May 2011		
SUBJECT:	Repair of erosional rills and installation of rip rap on western slope of ODA		



04 29 2011 08 38

PHOTOGRAPH:	14	PHOTOGRAPHER:	RR
DATE/TIME:	29-Apr-11	TIME:	839
PROJECT:	8-Acre Cap Repair Work Cherryvale Kansas April-May 2011		
SUBJECT:	Repair of erosional rills and installation of rip rap on western slope of ODA		



04 29 2011 09:42

PHOTOGRAPH:	15	PHOTOGRAPHER:	RR
DATE:	29-Apr-11	TIME:	942
PROJECT:	8-Acre Cap Repair Work Cherryvale Kansas April-May 2011		
SUBJECT:	Repair of erosional rills on north side of ODA		



04 29 2011 14:40

PHOTOGRAPH:	16	PHOTOGRAPHER:	RR
DATE/TIME:	29-Apr-11	TIME:	1440
PROJECT:	8-Acre Cap Repair Work Cherryvale Kansas April-May 2011		
SUBJECT:	Area south of ODA		



05.02.2011 17:45

PHOTOGRAPH:	17	PHOTOGRAPHER:	RR
DATE:	2-May-11	TIME:	1745
PROJECT:	8-Acre Cap Repair Work Cherryvale Kansas April-May 2011		
SUBJECT:	Backfill of 8-Acre Cap excavation with overburden material		



05.02.2011 18:00

PHOTOGRAPH:	18	PHOTOGRAPHER:	RR
DATE/TIME:	2-May-11	TIME:	1800
PROJECT:	8-Acre Cap Repair Work Cherryvale Kansas April-May 2011		
SUBJECT:	Excavation of 8-Acre Cap drainage swale		



PHOTOGRAPH:	19	PHOTOGRAPHER:	RR
DATE:	3-May-11	TIME:	1207
PROJECT:	8-Acre Cap Repair Work Cherryvale Kansas April-May 2011		
SUBJECT:	Excavation of 8-Acre Cap drainage swale		



PHOTOGRAPH:	20	PHOTOGRAPHER:	RR
DATE/TIME:	4-May-11	TIME:	1153
PROJECT:	8-Acre Cap Repair Work Cherryvale Kansas April-May 2011		
SUBJECT:	Backfill of 8-Acre Cap excavation		



PHOTOGRAPH:	21	PHOTOGRAPHER:	RR
DATE:	4-May-11	TIME:	1752
PROJECT:	8-Acre Cap Repair Work Cherryvale Kansas April-May 2011		
SUBJECT:	Grading 8-Acre Cap		



PHOTOGRAPH:	22	PHOTOGRAPHER:	RR
DATE/TIME:	4-May-11	TIME:	1708
PROJECT:	8-Acre Cap Repair Work Cherryvale Kansas April-May 2011		
SUBJECT:	Grading 8-Acre Cap		



05 05 2011 09 50

PHOTOGRAPH:	23	PHOTOGRAPHER:	RR
DATE:	5-May-11	TIME:	949
PROJECT:	8-Acre Cap Repair Work Cherryvale Kansas April-May 2011		
SUBJECT:	Covering waste stockpile with poly sheeting and clay, constructing clay berm		



05 05 2011 13:25

PHOTOGRAPH:	24	PHOTOGRAPHER:	RR
DATE/TIME:	5-May-11	TIME:	1325
PROJECT:	8-Acre Cap Repair Work Cherryvale Kansas April-May 2011		
SUBJECT:	Placing of fabric and rip rap in 8-Acre Cap drainage swale		



PHOTOGRAPH:	25	PHOTOGRAPHER:	RR
DATE:	5-May-11	TIME:	1557
PROJECT:	8-Acre Cap Repair Work Cherryvale Kansas April-May 2011		
SUBJECT:	Repair of upstream dike of CDS		



PHOTOGRAPH:	26	PHOTOGRAPHER:	RR
DATE/TIME:	5-May-11	TIME:	1752
PROJECT:	8-Acre Cap Repair Work Cherryvale Kansas April-May 2011		
SUBJECT:	Repair of upstream dike of CDS		



05.06.2011 09:33

PHOTOGRAPH:	27	PHOTOGRAPHER:	RR
DATE:	6-May-11	TIME:	933
PROJECT:	8-Acre Cap Repair Work Cherryvale Kansas April-May 2011		
SUBJECT:	Repair of erosional rills west slope of ODA		



05.06.2011 09:35

PHOTOGRAPH:	28	PHOTOGRAPHER:	RR
DATE/TIME:	6-May-11	TIME:	935
PROJECT:	8-Acre Cap Repair Work Cherryvale Kansas April-May 2011		
SUBJECT:	Repair of erosional rills north slope of ODA		



PHOTOGRAPH:	29	PHOTOGRAPHER:	RR
DATE:	6-May-11	TIME:	938
PROJECT:	8-Acre Cap Repair Work Cherryvale Kansas April-May 2011		
SUBJECT:	Repair of erosional rills west slope of ODA-outside fence		



PHOTOGRAPH:	30	PHOTOGRAPHER:	RR
DATE/TIME:	6-May-11	TIME:	940
PROJECT:	8-Acre Cap Repair Work Cherryvale Kansas April-May 2011		
SUBJECT:	Repair of erosion southwest corner of ODA-outside fence at southern drainage swale		



05 06 2011 09 42

PHOTOGRAPH:	31	PHOTOGRAPHER:	RR
DATE:	6-May-11	TIME:	942
PROJECT:	8-Acre Cap Repair Work Cherryvale Kansas April-May 2011		
SUBJECT:	8-Acre Cap and drainage swale		



05 06 2011 09 42

PHOTOGRAPH:	32	PHOTOGRAPHER:	RR
DATE/TIME:	6-May-11	TIME:	942
PROJECT:	8-Acre Cap Repair Work Cherryvale Kansas April-May 2011		
SUBJECT:	8-Acre Cap and drainage swale		



PHOTOGRAPH:	33	PHOTOGRAPHER:	RR
DATE:	6-May-11	TIME:	942
PROJECT:	8-Acre Cap Repair Work Cherryvale Kansas April-May 2011		
SUBJECT:	8-Acre Cap and drainage swale		



PHOTOGRAPH:	34	PHOTOGRAPHER:	RR
DATE/TIME:	6-May-11	TIME:	944
PROJECT:	8-Acre Cap Repair Work Cherryvale Kansas April-May 2011		
SUBJECT:	Topsoil added to north portion of 8-Acre Cap		



PHOTOGRAPH:	35	PHOTOGRAPHER:	RR
DATE:	6-May-11	TIME:	947
PROJECT:	8-Acre Cap Repair Work Cherryvale Kansas April-May 2011		
SUBJECT:	Topsoil applied to area north of EPA Repository with sparse vegetation		



PHOTOGRAPH:	36	PHOTOGRAPHER:	RR
DATE/TIME:	6-May-11	TIME:	948
PROJECT:	8-Acre Cap Repair Work Cherryvale Kansas April-May 2011		
SUBJECT:	Topsoil applied to area north of EPA Repository with sparse vegetation		



PHOTOGRAPH:	37	PHOTOGRAPHER:	RR
DATE:	6-May-11	TIME:	950
PROJECT:	8-Acre Cap Repair Work Cherryvale Kansas April-May 2011		
SUBJECT:	Repairs being made to Wedge area		



PHOTOGRAPH:	38	PHOTOGRAPHER:	RR
DATE/TIME:	6-May-11	TIME:	1013
PROJECT:	8-Acre Cap Repair Work Cherryvale Kansas April-May 2011		
SUBJECT:	8-Acre Cap and drainage swale		

ATTACHMENT 3
LABORATORY REPORT



**TIMELY
ENGINEERING
SOIL
TESTS, LLC**

1874 Forge Street Tucker, GA 30084
Phone: 770-938-8233
Fax: 770-923-8973
Web: www.test-llc.com



Tested By: VG
Date: 05/10/11
Checked By: *16*

Client Pr. #	-	Lab. PR. #	1102-02-1
Pr. Name	National Zinc, Cherryvale, Kansas	S. Type	UD
Sample ID	11428/E-8A-DS-001	Depth/Elev.	-
Location	Drainage Swale 8 Acres	Add. Info	-

ASTM D 5084; Standard Test Method for Measurement of Hydraulic Conductivity of Saturated Porous Materials Using a Flexible Wall Permeameter (Method D, Constant Rate of Flow)

Initial Sample Data (Before Test)				Test Data				Final Data (After Test)			
Height	2.916 in	7.41 cm		Speed	13			Average Height of Sample	2.858 in	7.26 cm	
Diameter	2.802 in	7.12 cm		Board Number	1			Average Diameter of Sample	2.796 in	7.10 cm	
Area	6.17 in ²	39.78 cm ²		Cell Number	3			Area	6.14 in ²	39.61 cm ²	
Volume	294.66 cm ³	0.0104 ft ³		Flow Pump Number	2B			Volume	287.56 cm ³	0.0102 ft ³	
Mass	557.90 g	1.23 lb		Flow Pump Rate	2.80E-05 cm ³ /sec			Mass	559.00 g	1.23 lb	
Specific Gravity	2.700 (Assumed)			B - Value	0.95			Dry Density	94.5 pcf		
Dry Density	92.2 pcf			Cell Pressure	95.0 psi			Vol. of Voids	126.24 cm ³		
				Back Pressure	80.0 psi			Vol. of Solids	161.32 cm ³		
				Confining (Effective) Pressure	15.0 psi			Void Ratio	0.78		
				Max Head	158.97 cm			Saturation	97.8 %		
				Min Head	158.27 cm						
				Maximum Gradient	21.90						
				Minimum Gradient	21.80						
Moisture Content				Moisture Content				Moisture Content			
Mass of wet sample & tare	557.90 g			Mass of wet sample & tare	653.70 g			Mass of wet sample & tare	653.70 g		
Mass of dry sample & tare	435.40 g			Mass of dry sample & tare	530.30 g			Mass of dry sample & tare	530.30 g		
Mass of tare	0.00 g			Mass of tare	94.90 g			Mass of tare	94.90 g		
% Moisture	28.1			% Moisture	28.3			% Moisture	28.3		

TIME FUNCTION			Δ t (sec)	READING (psi)	Head (cm)	Gradient	Temp. T _x (°C)	PERMEABILITY (cm/sec)		
DATE	HOUR	MIN						@ T _x	R _T	@ 20 °C
05/10/11	9	5	-	2.25	158.27	21.80	25.0	-	-	-
05/10/11	9	10	300	2.26	158.97	21.90	25.0	3.23E-08	0.889	2.88E-08
05/10/11	9	15	300	2.25	158.27	21.80	25.0	3.23E-08	0.889	2.88E-08
05/10/11	9	20	300	2.25	158.27	21.80	25.0	3.24E-08	0.889	2.88E-08 *
05/10/11	9	25	300	2.26	158.97	21.90	25.0	3.23E-08	0.889	2.88E-08 *
05/10/11	9	30	300	2.26	158.97	21.90	25.0	3.23E-08	0.889	2.87E-08 *
05/10/11	9	35	300	2.25	158.27	21.80	25.0	3.23E-08	0.889	2.88E-08 *

Note: Deaired Water Used for Permeability Test.

DESCRIPTION: NA

USCS (ASTM D2487/2488): NA

REMARKS: Portion of sample used for testing located 3" above bottom of shelly tube.

Flow pump ID #	244	Balance ID #	1/6/7	Differential Pressure Transducer ID #	263
Thermometer ID #	63	Oven ID #	14/15	Board Pressure Transducer ID #	64
Syringe ID #	246			Pore Pressure Transducer ID #	26/27

Reported Average Hydraulic Conductivity* 2.9E-08 cm/sec