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www.JoyceEngineering.com

June 20, 2014

Ms. Jackie Drummond
North Carolina Department of Environment and Natural Resources
Division of Waste Management/ Solid Waste Section
1646 Mail Service Center
Raleigh, North Carolina 27699-1646

**Re: Town of Kernersville Closed MSW Landfill, Permit No. 34-04
Selection of Remedy – Corrective Action Application
JOYCE Project No. 838.1301.12**

Dear Ms. Drummond:

On behalf of the Town of Kernersville, Joyce Engineering (JOYCE) is submitting the attached *Groundwater Corrective Action Application* (Form GWCA .0500 Application) for the Closed Town of Kernersville Landfill, Permit No. 34-04. The Town of Kernersville Landfill is a closed, unlined municipal solid waste (MSW) landfill located on approximately 58.2 acres in Forsyth and Guilford Counties, North Carolina, approximately ten miles north of the City of Kernersville. The waste disposal area comprises approximately 13.8 acres. The facility was issued a Permit to Operate on May 15, 1985 and a letter of closure was issued on December 10, 1991. The facility is regulated under North Carolina Solid Waste Management Rules 15A NCAC 13B.0500.

Due to detections of volatile organic compounds (VOCs) in the groundwater at the facility in exceedance of established groundwater standards, JOYCE submitted a *Groundwater Assessment Plan* to the North Carolina Department of Environment and Natural Resources (DENR) in January 2013, which was approved by DENR on February 14, 2013. In accordance with the approved plan, JOYCE prepared and submitted a *Groundwater Assessment Report* in May 2013. In a letter dated July 16, 2013, responding to the *Groundwater Assessment Report*, you requested that the Town submit a *Groundwater Corrective Action Application* within one year of that date of that letter.

Based on our review of site data, including data presented in the May 2013 *Groundwater Assessment Report*, and considering the characteristics of the site and surrounding properties, JOYCE recommends Monitored Natural Attenuation (MNA) plus phytoremediation as the most appropriate remedy for this site. In the unlikely case that future data indicate that MNA plus phytoremediation are not adequately controlling and/or remediating the groundwater contaminant plume, JOYCE further recommends the following two contingency plan options:

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A) Control of landfill gas through installation of passive or active gas vents or an intercept trench; and/or B) Installation of a reactive barrier trench to intercept and filter the shallow groundwater plume.

Attached is a copy of the minutes from the Town's Board of Alderman meeting on April 1, 2014 documenting the Board's adoption of a resolution selecting MNA plus phytoremediation as the remedy for groundwater impacts at the landfill. A site map showing the facility's monitoring well network and a groundwater potentiometric surface based on the most recent (May 2014) data is also attached. There are no conceptual schematics, drawings, or plans needed for the selected remedy at this time. To our knowledge, there are also no other registrations, permits, or approvals required. Please note that neither JOYCE nor the Town of Kernersville has been able to locate copies of the facility permit or closure letter, and there are no copies of the permit or closure letter available on the DENR CARA³ Portal.

A Corrective Action Plan (CAP) will be developed and submitted to you within 90 days of your approval of the proposed remedy. Please feel free to contact me at (336) 323-0092 if you have any questions or comments.

Respectfully,
JOYCE ENGINEERING



Van Burbach, Ph.D., P.G.
Technical Consultant

Attachments: Form GWCA .0500 Application
Minutes of Town of Kernersville April 1, 2014 Board Meeting
Site Map with Groundwater Potentiometric Surface

Copy: Thad Buck, Town of Kernersville



**North Carolina Department of Environment and Natural Resources
Division of Waste Management
Solid Waste Section**

North Carolina Solid Waste .0500 Groundwater Corrective Action Application

Post closure care monitoring of this .0500 solid waste management facility is required pursuant to the rules codified at 15A NCAC 13B Section .0500, *et. seq.*, .0600, *et. seq.*, and N.C.G.S. 130A-309.27. Groundwater quality at this solid waste management facility is also subject to the "Classifications and Water Quality Standards Applicable to the Groundwaters of North Carolina," 15A NCAC 2L.

Due to the detections of groundwater exceedances at this solid waste management facility, pursuant to 15A NCAC 2L .0106(d)(2), any person conducting or controlling an activity under the authority of a permit which results in an increase in concentration of a substance in excess of the standards at or beyond the compliance boundary is required to assess the nature and extent of the contamination and submit the results of the investigation and a plan for corrective action to the Division. In accordance with 15A NCAC 2L .0107, a compliance boundary (the relevant point of compliance) shall be established 250 feet from the waste boundary, or 50 feet within the property boundary, whichever point is closer to the source.

As a result, groundwater corrective action is required to be implemented at this solid waste management facility, and a remedy must be selected. Once the Division approves the selected remedy, a Corrective Action Plan (CAP) is required to be submitted. The Division highly recommends conducting a public meeting to discuss the selected remedy. Please complete the North Carolina Solid Waste .0500 Groundwater Corrective Action Application and please attach the following:

- (1) a signed resolution/proclamation/document adopting the selected remedy,
- (2) a site map designating the locations of the groundwater monitoring wells and surface water monitoring locations that will or may be impacted by the selected remedy,
- (3) any draft conceptual schematics/figures/plans relating to the selected remedy,
- (4) a list of any required registrations, permits, and approvals,
- (5) a copy of the facility's permit issued by the Solid Waste Section,
- (6) a copy of the facility's closure letter/permit issued by the Solid Waste Section, and
- (7) a copy of the minutes from the public meeting discussing the selected remedy(if applicable)

Please send or email the completed application and the attachments to NCDENR-DWM, Solid Waste Section, Compliance Unit, 1646 Mail Service Center, Raleigh, NC 27699-1646. This application and any documents attached to this application are "Public Records" as defined in NC General Statute 132-1. As such, these documents are available for inspection and examination by any person upon request (NC General Statute 132-6).

Please type all information.

I. Site Identification

Permit Number: 34-04

Facility Name: Town of Kernersville Closed MSW Landfill

Facility Physical Address: Freeman Rd.

City: Kernersville, NC Zip: 27284

County: Forsythe

Waste Type: MSW

II. Owner and Operator Information

Check box, if owner and operator are the same.

Owner

Name: Town of Kernersville

Address: P.O. Box 728, Kernersville, NC 27284

Phone Number: (336) 996-2982

Operator

Name: Same as above

Address: _____

Phone Number: _____

III. Groundwater Corrective Action

Selected remedy (include additional lines if needed):

(1) Monitored Natural Attenuation

(2) Phytoremediation

(3) _____

Contingency Plan A: Management of Landfill Gas

Contingency Plan B: Reactive Barrier Trench

IV. Project Schedule (upon Division approval)

Approximate Date of Remedy Construction Completion (if applicable): NA

Approximate Date of Implementation of Remedy: Fall 2014

Approximate Date of MNA Baseline Sampling Completion (if applicable): Spring 2016

Approximate Date of Submittal of the Corrective Action Evaluation Report: August 2016

V. Environmental Consultant

Consulting Company: Joyce Engineering

Address: 2211 W. Meadowview Rd., Suite 101, Greensboro, NC 27407

Phone Number: (336) 323-0092

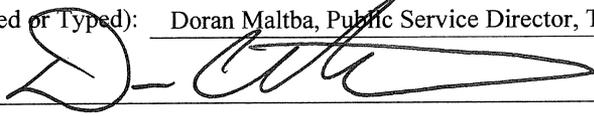
VI. Signatures

To the best of my knowledge, the information reported and statements made in this North Carolina Solid Waste .0500 Groundwater Corrective Action Application are true and correct. I am aware that there are significant penalties for making any false statement, representation, or certification including the possibility of fine and imprisonment.

If Owner and Operator are the same, please sign for Owner and type or write SAME for Operator.

Owner

Owner Name (Printed or Typed): Doran Maltba, Public Service Director, Town of Kernersville

Owner Signature: 

Date: 7/7/14

Operator

Operator Name (Printed or Typed): SAME

Operator Signature: _____

Date: _____

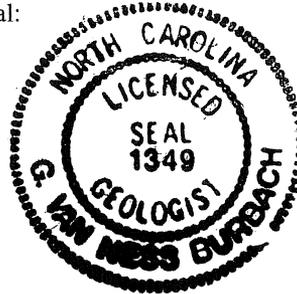
NC Professional Geologist or NC Professional Engineer

Name (Printed or Typed): G. Van Ness Burbach, Ph.D., P.G.

Signature: 

Date: 7/7/14

Affix NC Professional Geologist or Engineer Seal:

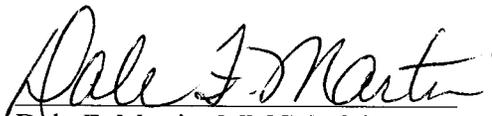


P.O. Box 728
Kernersville, NC 27285-0728

134 East Mountain Street
Telephone (336) 996-3121
Fax (336) 996-4822

I, Dale F. Martin, Town Clerk of the Town of Kernersville, North Carolina, do hereby certify that the attached document is a true and accurate copy of the Minutes of the Kernersville Board of Aldermen at their Regular meeting held on April 1, 2014.

Witness my hand and the seal of the Town of Kernersville, this 8th day of May, 2014.


Dale F. Martin, MMC, NCCMC
Town Clerk



ALDERMEN

Kenny Crews - Keith Hooker - Irving Neal - Joe L. Pinnix Jr. - Tracey H. Shifflette



NORTH CAROLINA'S
**PIEDMONT
TRIAD**

Mayor Morgan asked if the plan would identify any drainage issues. Mr. Maltba stated that the plan is expected to cover a little of everything.

Alderman Crews stated that this is a safety feature for the Town. He noted that if the Town gets fined just once we have doubled our expenditure.

Alderman Neal asked why we can't follow instructions provided by the State instead of having this plan. Mr. Maltba stated that we are in five different watersheds and this is more complex than Staff can handle.

Alderman Neal expressed a concern with the lost tax base because of overkill on regulations. Mr. Swisher stated that this plan will help us maximize our resources to minimize the impact these regulations have on the Town. Alderman Neal spoke about the situation with JC Faw and his not being in compliance. Mr. Swisher reminded the Board that these are mandated regulations whether we agree with them or not and projected that the cost will continue to increase. He reminded the Board that if the Town gets fined then everybody will have to pay for it.

Mayor Pro Tem Pinnix asked if the other proposals submitted were by qualified companies. Mr. Maltba stated we contacted the company most qualified to help us with this and then negotiated a price for the plan.

Alderman Tracey Shifflette made a **Motion** to approve a Professional Services contract with Raftelis Financial Services for a long range Strategic Plan for Stormwater. Alderman Keith Hooker seconded the motion. The vote was 3-2 and motion carried. Vote in opposition: Alderman Neal and Crews.

9. Consideration of a Resolution Adopting a Remedy for Groundwater Impacts at the Closed Landfill in Kernersville.

Mr. Maltba reminded the Board of the discussion at the Board's Briefing. He stated that we received a notice by the State to provide a groundwater corrective action plan due to a chemical leak at the landfill. Our Engineers have studied this issue and put together a corrective plan of action.

Alderman Hooker asked if the State has indicated their approval of this plan. Mr. Maltba explained that the State has reviewed the plan and did give tentative approval. We will continue to monitor the landfill every six (6) months. If the plan is not approved by the State we would also be required to submit another plan. If this plan does not work we will be required to do something else also.

Alderman Keith Hooker made a **Motion** to approve the following resolution adopting a Remedy for Groundwater Impacts at the closed landfill in Kernersville. Alderman Irving Neal seconded the motion and the vote was all for and motion carried.

RESOLUTION NO. R-2014-06

**RESOLUTION BY THE TOWN OF KERNERSVILLE, NORTH CAROLINA
TO ADOPT MONITORED NATURAL ATTENUATION PLUS PHYTOREMEDIATION AS THE
REMEDY FOR GROUNDWATER IMPACTS
AT THE CLOSED KERNERSVILLE LANDFILL**

WHEREAS, the North Carolina Solid Waste Management Regulations [15A NCAC 13B.0500, et. seq.; 15A NCAC 13B.0600, et. seq.; and NCGS 130A-309.27] require the owner of a closed landfill to perform post-closure monitoring of groundwater quality at the facility, and such facilities are subject to the “Classification of Water Quality Standards Applicable to the Groundwaters of North Carolina” [15A NCAC 2L], which requires assessment of the nature and extent of any exceedance of water quality standards and submittal of a plan for corrective action;

WHEREAS, on May 13, 2013, the Town of Kernersville and its consultants submitted a *Groundwater Assessment Report* for the closed Kernersville Landfill (Permit No. 34-04) delineating the nature and extent of landfill constituents detected in the groundwater of the facility in exceedance of water quality standards;

WHEREAS, in a letter dated July 16, 2013, DENR approved the *Groundwater Assessment Report*, and required the Town of Kernersville within one year of receipt of that letter to select a remedy to restore groundwater quality at the facility; and

WHEREAS, the Town of Kernersville and its consultants have concluded that a combination of Monitored Natural Attenuation (MNA) plus Phytoremediation will be the most appropriate and cost-effective remedy;

NOW, BE IT RESOLVED, that the Town of Kernersville Board of Aldermen supports and approves the adoption of MNA plus Phytoremediation as the selected remedy for restoration of groundwater quality at the closed Kernersville Landfill.

Adopted by the Town of Kernersville Board of Aldermen on April 1, 2014.

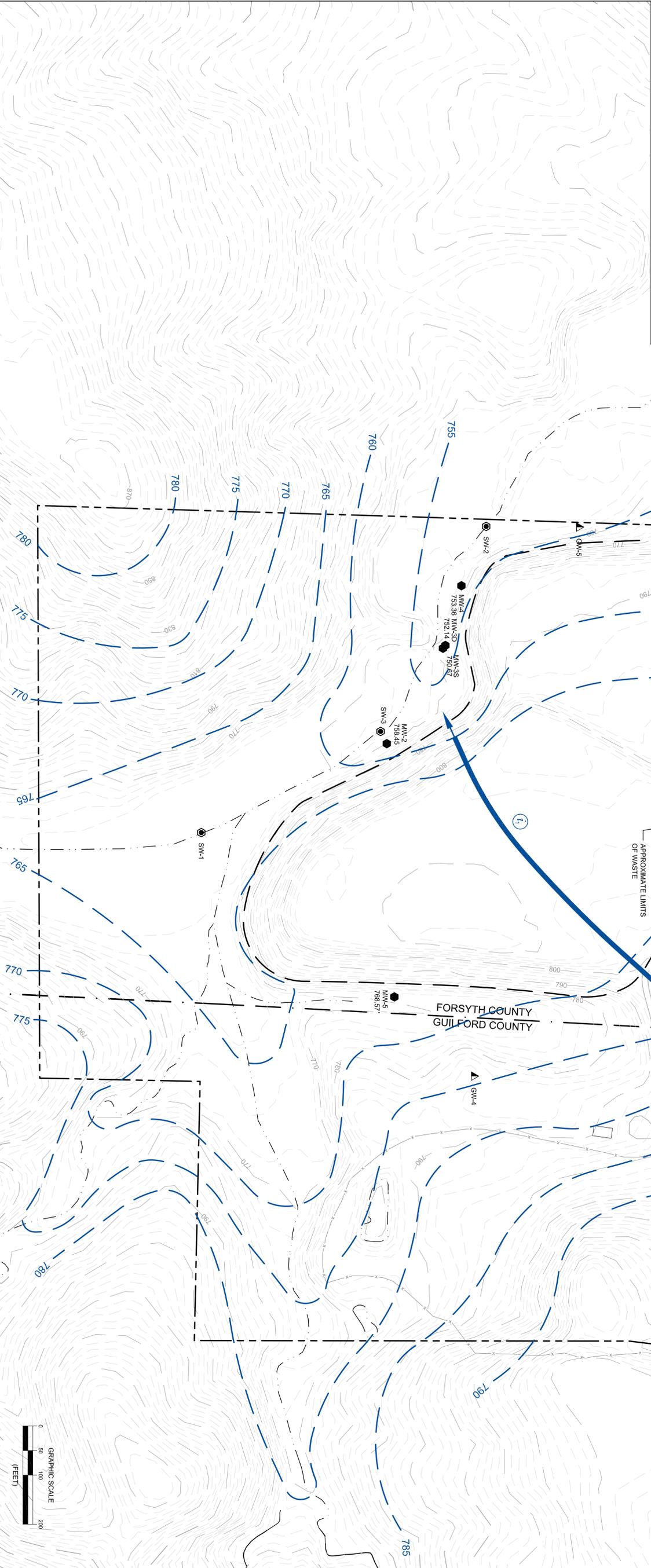
10. Consideration of pursuing a Land Use Plan change as recommended in the Land Use Plan – Area Study.

Mr. Hatling, Community Development Director stated that Staff was directed to work with the Planning Board to development a Land Use Plan –Area Study of the eastern portion of Old Winston Road, southern portion of South Cherry Street and Southern Street area. The Planning Board reviewed the current draft area plan and recommended no changes. He added that Staff is requesting further direction by the Board:

1. to proceed with a formal public hearing process for considering amendments to the Land Use Plan or
2. require developers to request Land Use Plan amendments as they submit rezoning proposals.

LEGEND

- 800 --- EXISTING 10' TOPOGRAPHIC CONTOUR
- EXISTING 2' TOPOGRAPHIC CONTOUR
- PROPERTY LINE
- EXISTING ROAD
- APPROXIMATE LIMITS OF WASTE
- CENTERLINE OF STREAM
- GROUNDWATER CONTOUR AND ELEVATION
- SW-1 APPROXIMATE SURFACE WATER SAMPLING POINT LOCATION AND IDENTIFICATION
- MM-1 771.46 MONITORING WELL IDENTIFICATION AND WATER LEVEL READING
- GROUNDWATER FLOW DIRECTION WITH GRADIENT CALCULATION SEGMENT
- ① SEGMENT USED FOR GRADIENT CALCULATIONS
- ▲ GW-1 LANDFILL GAS WELL - TOWN OF KERNERSVILLE
- ▲ GW-1 LANDFILL PASSIVE GAS VENT
- ◇ GP-1 LANDFILL GAS PROBE - VM PIEDMONT
- NMI NOT MONITORED



PIEDMONT LANDFILL AND RECYCLING CENTER

FORSYTH COUNTY
GUILFORD COUNTY



DRAWING NO. 1	AS SHOWN	SCALE	PROJECT NO. 838.1301.12	<p>JOYCE ENGINEERING</p> <p>2211 W. MEADOWVIEW ROAD GREENSBORO, NC 27407 PHONE: (336) 323-0092</p> <p>NC CORP LIC: C-0782</p>	DESIGNED AC	<table border="1"> <thead> <tr> <th>DATE</th> <th>REVISIONS AND RECORD OF ISSUE</th> <th>NO</th> <th>BY</th> <th>CK</th> <th>APP</th> </tr> </thead> <tbody> <tr> <td> </td> <td> </td> <td> </td> <td> </td> <td> </td> <td> </td> </tr> </tbody> </table>	DATE	REVISIONS AND RECORD OF ISSUE	NO	BY	CK	APP						
			DATE		REVISIONS AND RECORD OF ISSUE		NO	BY	CK	APP								
TOWN OF KERNERSVILLE LANDFILL FORSYTH COUNTY, NORTH CAROLINA	POTENTIOMETRIC SURFACE CONTOUR MAP JUNE 5, 2014	DATE	06/17/14															