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NSY PORTSMOUTH
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LETTER REQUESTING U S EPA REGION I REVIEW OF DRAFT TECHNICAL MEETING MINUTES FROM 13 NOVEMBER 2003 WITH ATTACHMENTS NSY PORTSMOUTH ME
11/26/2003
NAVFAC NORTHEAST

DEPARTMENT OF THE NAVY
ENGINEERING FIELD ACTIVITY, NORTHEAST
NAVAL FACILITIES ENGINEERING COMMAND
10 INDUSTRIAL HIGHWAY
MAIL STOP, #82
LESTER, PA 19113-2090

IN REPLY REFER TO
5090
Code EV23/FE
November 26, 2003

Mr. Matthew Audet
U.S. Environmental Protection Agency, Region I
1 Congress Street
Suite 1100
Mail Code HBT
Boston, MA 02114-2023

Mr. Iver McLeod
Maine Department of Environmental Protection
State House Station 17
Augusta, ME 04333-0017

Subject: CHANGE REQUEST FORM (CRF) 11 FOR OU3 REMEDIAL CONSTRUCTION; PORTSMOUTH NAVAL SHIPYARD, KITTERY, ME

Dear Mr. Audet/Mr. McLeod:

Enclosed are the draft meeting minutes for the November 13, 2003 Technical meeting on Change Request Form 11.

Please provide any comments on the draft meeting minutes on or before December 3, 2003.

If additional information is required, please contact Ms. Marty Raymond at 207-438-2536 or myself at 610-595-0567, x159.

Sincerely,

FREDERICK J. EVANS
Remedial Project Manager
By direction of the
Commanding Officer

5090
Code EV23/FE
November 26, 2003

Copy to:
Mr. Jeff Clifford
Mr. Jack McKenna
Ms. Carolyn Lepage
PNS (Code 106.3R)
TtNUS (D. Cohen)
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Mr. Phil McCarthy
Mr. Onil Roy
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NHFG (Dr. C. McBane) (via email)
Mr. Doug Bogen(via email)
Mr. Peter Britz(via email)
Mr. Alan Davis(via email)
Ms. Michele Dionne(via email)
Mr. James Horrigan(via email)
Ms. Mary Marshall(via email)
Ms. Diana McNabb(via email)

TETRA TECH FW, INC.

CONTRACT TASK ORDER NO. 65
JAMAICA ISLAND LANDFILL
PHASE II
KITTERY, ME

TECHNICAL MEETING NOVEMBER 13, 2003

DISTRIBUTION:

Fred Evans, EFANE	Marty Raymond, PNS
Jim Briggs, EFANE	Dan Sullivan, TTFWI
Christi Davis, EFANE	Carl Tippmann, TTFWI
Gerry Wallace, ROICC	Joshua Holden, TTFWI
Matt Audet, USEPA	Tom Fowler, TTFWI
Iver McLeod, MEDEP	Harrison Bispham, MEDEP
Mike Michaud, ROICC	Manuela Machado, TTFWI
Paul Anderson, TTFWI	Kendall Walker, TTFWI
Jeff Hoyt, PNS	Kevin Pavlik, USACE
Jean Choi, USEPA	Tom Kelly, TTFWI

The Technical Meeting was held on November 13th, 2003 in the craft/meeting trailer at the Jamaica Island Landfill Support Zone in Kittery, Maine, to discuss the low permeability soil layer and Change Request Form No. 11 (R1).

ATTENDEES:

Fred Evans	EFANE	NTR / RPM
Christi Davis	EFANE	COTR
Marty Raymond	PNS Env	IR Program Manager
Kevin Pavlik	USACE	Project Engineer
Dave Ray	USACE	Geotechnical Chief
Gerry Wallace	ROICC	Construction Project Manager
Matt Audet	USEPA	RPM
Jean Choi	USEPA	Project Engineer
Iver McLeod	MEDEP	RPM
Harrison Bispham	MEDEP	Project Engineer
Jim Bouquet	SAPL	Project Consultant
Dan Sullivan	TTFWI	Site Manager
Kendall Walker	TTFWI	Field Engineer / QC
Tom Fowler	TTFWI	Project Engineer/QC

SITE ADDRESS:Bldg. 337 Parking lot Goodrich Ave, PNS Portsmouth,NH 03804
TEL: 207-451-9751 FAX: 207-451-9769

I. AGENDA

9:00 - 9:15	Introductions
9:15 - 10:00	1. Gradation requirements during material placement
10:00 - 10:15	Break
10:15 - 11:00	2. Frequency of Visual Classification Tests
11:00 - 11:15	Break
11:15 - 12:00	3. Acceptable Zone Development
12:00 - 12:30	Lunch
12:30 - 13:15	4. Why does EPA/600R02/099 not apply to our material?
13:15 - 13:30	Break
13:30 - 14:15	5. Performing the transmissivity test at a hydraulic gradient of 0.25
14:15 - 14:30	Break
14:30 - 15:15	6. Other Issues

II. MEETING MINUTES

Introductions

The meeting began at approximately 9:30 am in the craft/meeting trailer at the Jamaica Island Landfill support zone. Fred Evans asked all attendees present to introduce themselves and whom they represent. The meeting proceeded by addressing the first item on the agenda.

1. Gradation requirements during material placement.

Iver McLeod, MEDEP began the discussion by making reference to Change Request Form (CRF) No. 11 (R1) which removed the requirement for a 30 percent fines (passing the No. 200 U.S. standard sieve) content from specification section 02377A for the low permeability soil layer. MEDEP wants better justification for the removal of this requirement for the low permeability soil layer. Iver also stated that the moisture and density test results received so far looked acceptable. In addition to meeting the requirement of 30 percent fines, Iver wanted to insure that the low permeability material being placed would also meet a maximum hydraulic conductivity of $1x10^{-4}$ cm/second. Harrison Bispham added that MEDEP accepted the design because the 30 percent fines criteria was included in the original specification. Harrison Bispham went on to state that in order for him to make a recommendation to MEDEP that CRF No. 11 (R1) is a reasonable change, he needs to have the change request provide sufficient justification for the changes as well. Fred Evans responded that it would have been helpful during the design phase of the project to know that the 30 percent fines criterion was critical to MEDEP's acceptance of the design. The Navy was not aware the 30 percent fines criteria was critical to the MEDEP until the MEDEP raised the issue at the October 2003 RAB meeting. It was noted that laboratory test data gathered by TTFW demonstrates that $1x10^{-4}$ cm/second hydraulic conductivity is being met without the 30 percent fines.

MEDEP needs to understand the implications of removing the 30 percent fines content requirement from the specification as they were relying on the gradation requirements to help ensure that $1x10^{-4}$ cm/second hydraulic conductivity was being achieved.

Jean Choi, EPA Region I, suggested the Navy add a value for the percent fines into the specification to make the MEDEP comfortable. Kevin Pavlik from USACE indicated they were

reluctant to do so. He explained Dredge Spoils 1 had a 15 percent fines content, but was not placed as low permeability soil because it did not meet the $1x10^{-4}$ permeability requirement, yet the screened gravel meets the permeability requirement with a fines content of 10 to 12 percent.

MEDEP indicated they were satisfied with leaving the low permeability material that had been placed from the start of the project in-place instead of going backwards and replacing the material. They wanted to be assured that the remaining material to be placed would be acceptable as a low permeability material.

Fred Evans emphasized the need to use on-yard materials as the $1x10^{-4}$ low permeability layer. He concluded that the over-all gradation of the material along with the $1x10^{-4}$ permeability requirement should determine whether that material will be useable or not for the low permeability layer, not the fines percentage.

Jean Choi felt that having a material with less than 15 percent fines would not result in achieving the required permeability rate. He stated that there is a need for more flexibility in meeting the requirements but without the permeability test it would be difficult to justify what meets the requirements.

MEDEP suggested an assessment by the design engineers (USACE) to determine the differences between a material with a 30 percent fines content and what TTFW is currently using from on-site as a low permeability material. Harrison Bispham mentioned that CRF 11 (R1) fines content change justification could be improved if the Navy addressed other practical issues such as recycling on-yard materials, placement and workability. A material with a 30 percent fines content would be more difficult to work with and place compared to a coarser material. Iver McLeod agreed that there has to be mention in the assessment as to the benefits of dropping the 30 percent fines requirement, addressing the practical issues (i.e. recycling, placement, workability, traffic, cost, long term performance, settlement, constructability, frost).

Fred Evans agreed to have the design engineers provide an assessment comparing the material that does not have a 30 percent fines content to one that does and how this correlates to meeting the $1x10^{-4}$ cm/second permeability requirement. He also mentioned that the performance requirement of a $1x10^{-4}$ cm/second layer should also be addressed in the assessment.

Harrison Bispham suggested the assessment leave out the performance requirements and focus on the deletion of the fines requirement as that was the overriding issue for the MEDEP. Harrison Bispham wanted to be assured that removal of the 30 percent fines requirement would be evaluated and justified and would not be overlooked just because $1x10^{-4}$ cm/second requirement was met. Harrison Bispham also mentioned another reason he could not relay to the MEDEP that everything was satisfactory in regards to the low perm layer was because he did not have the acceptable zone and moisture density results to review at the time.

MEDEP asked the Navy why the 30 percent fines requirement was in the specification in the first place. Fred Evans responded by stating that the USACE had tested the dredge spoil material before the project began and this initial data indicated the spoils had 30 percent fines content. Kevin Pavlik added that we are now relying on geotechnical laboratory testing to show adherence to the permeability requirement.

Harrison Bispham asked Jim Bouquet whether he saw the specification requiring 30 percent fines and/or a $1x10^{-4}$ cm/second permeability. Jim Bouquet from SAPL mentioned that he felt the low permeability design should meet either a 30 percent design requirement or a $1x10^{-4}$ cm/second permeability requirement. He stated that if QC testing is sufficient to show the material meets a $1x10^{-4}$ cm/second permeability requirement then he would be okay with that. In response to the assessment report proposed by the MEDEP, USACE stated they could do the report although the funding and schedule would have to be addressed. The Navy replied that it could take up to a month to give the USACE the necessary funds to cover the assessment. Christi Davis, EFANE, stated that the report likely could not be issued until January.

The low permeability soil material summary spreadsheet was addressed by Kevin Pavlik stating that TTFW had done a good job in grouping the various dredge spoil and screened gravel materials to met the $1x10^{-4}$ cm/second permeability requirement even though these materials did not exhibit 30 percent fines content. MEDEP agreed that the spreadsheet was helpful in demonstrating compliance to the permeability requirement. The MEDEP was surprised that the variation between the materials was slight and they were pleased that the low perm material was similar.

One last point the MEDEP brought up was that they were concerned with the possibility of long-term performance degradation and settlement over time of the low permeability layer and would like those issues addressed. Harrison Bispham asked why the Navy did not look for 30 percent fines material offsite. Christi Davis responded that the intention from the very beginning was to use on-yard materials. TTFW also mentioned community concern in regards to an increase in local truck traffic that would be generated from bringing material onsite. The community was also concerned about the height of the landfill increasing if more material were to be brought on-site. TTFW added that the 30 percent fines criteria was not established at the time of the design meeting.

Both the MEDEP and TTFW suggested an outline should be made to address what is expected out of the assessment the USACE will be putting together. As previously mentioned there was an overall agreement that the items that should be included in the assessment are: re-use of on-yard material, recycling, workability of materials, long term performance, settlement, desiccation cracking, additional traffic, and additional cost.

2. Frequency of Visual Classification Tests

MEDEP asked at what frequency the material testing was being performed. TTFW responded that a gradation analysis was conducted every 2,500 cubic yards, Atterberg limits every 2,500 cubic yards, USCS classification every 2,500 cubic yards, Proctor curves every 5,000 cubic yards, and a hydraulic conductivity tests every 6,500 cubic yards. TTFW went on to explain that Proctor testing is done on the same material that is tested for hydraulic conductivity. MEDEP asked TTFW what would be the sampling regime if they received a quantity of material that fell within one of the sampling frequencies. TTFW explained the sampling regime given that situation. MEDEP agreed that the sampling frequencies made sense and that everything appeared to be done correctly by TTFW. The Navy assured MEDEP that the sample volume collected was adequate to insure all required tests were being performed from the same representative material.

MEDEP also wanted to receive some input on the visual classification process, insuring that the methods presented in ASTM D 2488 were being implemented. TTFW responded that a visual assessment is being done on all materials in accordance with ASTM D 2488. MEDEP wanted to ensure that the visual classification was being done continually to notice any changes that might occur in the material.

3. Acceptable Zone Development

MEDEP had a chance to look at the acceptable zones with the field moisture content and dry density data plotted and stated they felt satisfied with the results and did not have any remaining issues with the acceptable zone development. Harrison Bispham indicated that the results fell where he would have plotted them on the curves. He would have preferred to have higher density results although he was impressed that the results were lumped all in one area and credited the Navy and TTFW for that.

Harrison Bispham also maintained that the recommended acceptable zone development methodology presented in EPA/600R02/099 (Method B) was better than what was performed for the project. Harrison Bispham felt that the emphasis should be placed on obtaining more compaction results that pass with a higher density and moisture content rather than falling in the low end of acceptable dry densities and moisture contents. Harrison Bispham suggested that during next year's placement of the low perm layer that an effort could be made to try to get more material exhibiting a higher density and lower moisture content.

USACE and the Navy pointed out that doing additional compaction to increase density could have an adverse impact on the underlying gas vent layer.

It was then collectively agreed that when everyone worked together all needs were satisfied. TTFW added by stating that it helped greatly when the Navy opened the door to allow for a team effort with the USACE during the design phase.

4. Why does EPA/600R02/099 not apply to our material?

Kevin Pavlik opened by stating that the specifications did not require development of the acceptable zone using three different compactive efforts as recommended by EPA/600R02/099. Also the material in use as low permeability soil is not a natural clay material. It was noted that natural clay materials are not readily available in the immediate vicinity in large quantities and that it was the Navy's intention to use on-yard material for the low permeability layer. USACE also indicated they have confidence in the development of the acceptable zones based on Dr. Allen Marr's endorsement stating the acceptable zones were developed in principle with the recommended procedure of EPA/600R02/099. The USEPA guidance pertains to a lean and fat clay type materials required to meet a maximum permeability requirement of $1X10^{-7}$ cm/second, not the granular material we have on-yard.

Harrison Bispham stated that he did not see a need to change anything with the acceptable zone development methodology used to date.

Christi Davis, EFANE, spoke to TTFW to ensure that no more geosynthetic material placement was planned this year. TTFW assured the Navy that only the low permeability material was going to be placed for the rest of this year until the weather prevents TTFW from making any more forward progress. TTFW had also mentioned that they plan to have all newly placed low perm material tested for compaction this year even though they will have to re-test next year to

ensure that the frost did not have a negative impact on the compaction of the material. The Navy suggested that TTFW hold off with testing of the low perm material until next year. TTFW responded that they would rather find out whether the low perm layer will met the requirements now instead of waiting until next year. Christi added that it would be interesting to see how the winter frost affects the compaction of an exposed low permeability layer by testing both before and after the winter season.

5. Performing the transmissivity test at a hydraulic gradient of 0.25.

The Navy indicated this topic was added to the agenda because the EPA had raised the issue of having the side slope geocomposite meeting the transmissivity requirement at a hydraulic gradient of 0.25. Jean Choi stated that in any future side slope transmissivity testing should be performed at a hydraulic gradient of 0.25 to simulate the 4H:1V side slopes. Kevin Pavlik stated that according to the sampling regime the side slopes do not require further CQC testing based on the square footage of material placed. TTFW stated that only one more transmissivity test is needed on the top slope geosynthetic drainage layer, but that is not being placed at a slope of 0.25.

Kevin Pavlik stated that the specification required CQC transmissivity testing at a hydraulic gradient of 0.1 with a normal load of 200 psf. The side slope geocomposite transmissivity testing was conducted at a hydraulic gradient of 0.1 and 1.0 with a normal load of 1,000 psf as required for MQC testing. Therefore the test results are acceptable since test conditions bound the actual hydraulic gradient in the field (0.25), exceed the required normal load, and the test results meet or exceed the required transmissivity.

Jean proceeded to then talk about ultrasonic thickness testing and how this new technology can prevent the contractor from destroying perfectly good welds with destructive tests. He stated that one of the important criteria for a good weld would be to weld the seams using a uniform temperature and speed. Jean then went on to talk about leak detection systems.

6. Other Issues

The Navy brought up the issue of TTFW identifying a shortage of approximately 9,000 cubic yards of material required to bring the landfill up to the current design grade. TTFW proposed two alternatives to solve this problem. They proposed that they could either buy clean soil that would cost more but would take less time or have a redesign done. A redesign would cost less but would take more time. TTFW pointed out that bringing in soil would mean that more trucks would be coming onto the Shipyard. TTFW explained some of the pros to doing a redesign stating that no major changes would be made to the design assumptions, in that the end use would be the same. Dan Sullivan stated a redesign would mean the relocation of several gas vents. The internal drainage layer probably would not be affected nor would the 4 horizontal on 1 vertical slopes. TTFW indicated they believed that there would be little to no impact across the board. TTFW stated that the redesign would be a field change request instead of a complete redesign.

Jim Bouquet asked the Navy the reasons behind being 9,000 cubic yards shortfall. The Navy responded that it probably related to the compaction of the dredge spoil material and the screened gravel material being underestimated. TTFW added that the USACE had designed in a "fluff" factor within the design on the landfill. This is standard design practice as it is always easier to drop the elevation of the cover system rather than raise the elevation during construction. Additionally, USACE did not want the Navy to have excess materials that would

need to be shipped off-yard. TTFW proposed having the southwest corner area modified to allow a small parking lot to reduce the need for imported material and/or having the grade of the majority of the south cap lowered. The Navy recommended having TTFW do the redesign because they have money that would be in place now as opposed to waiting for funds to become available for USACE. USACE would be responsible for the review of the redesign and discussion would take place throughout the course of the redesign to ensure all parties are in agreement.

Jim Bouquet brought up the idea that if we were to buy material from an offsite borrow source then we should buy some material that meets the 30 percent fines requirement. TTFW responded to his comment by stating that they currently have 9,000 cubic yards of low perm on-site, therefore they should only be buying common fill to bring the landfill up to grade. TTFW's current estimate for common fill is $5.75 per ton. TTFW also mentioned that a borrow source assessment and chemical analysis of the fill material would also be necessary.

The Navy expressed that the schedule was critical and that they did not want TTFW to stop grading the south cap. TTFW responded that the placement of the gas management layer and low permeability layer will not start until the Navy approved the redesign grades.

Christi Davis planned two weeks for review of the TTFW redesign by the regulators. The Navy also stressed the importance of maintaining regular discussions between the USACE, Navy, and TTFW on the status of the redesign.

USACE stated they could have an outline of the 30 percent fines to $1x10^{-4}$ cm/second low permeability assessment prepared for tomorrow.

Iver indicated he may not be at the December RAB meeting but he would send a letter to the RAB when the issues have been resolved to the department's satisfaction.