S: - 6 Apr 84

LMVED-TS

JOHNSON/

SUBJECT: Datum Changes in Southern Louisiana

W.

Commander, New Orleans District

1. On 10 Apr 84, Mr. David S. Zilkoski, Chief of the Vertical Analysis Section, National Geodetic Survey in Rockville, MD, will be in Vicksburg to brief General Road and his staff on the recently completed leveling and adjustment work on the Vertical Datum in the Gulf Coast area. As these level adjustments will affect projects in your area of concern, you and members of your staff are requested to attend the briefing.

2. The briefing will begin at 10:00 a.m. in the Vicksburg District Main Conference Room on the fourth floor of the Crawford Street Post Office Building.

3. In addition to the briefing on 10 Apr, there will be an informal "round-table" discussion among members of the LMVD staff and Mr. Zilkoski during the afternoon of 9 Apr 84. This discussion will begin at 1:00 p.m. in Room 206 of the Walnut Towers Building. You are encouraged to attend this discussion also. A tentative list of attendees for both meetings should be furnished by 6 Apr 84.

4. My point of contact for these activities is Mr. Frank N. Johnson. Mr. Johnson can be reached at EXT. 5935 for additional information.

FOR THE COMMANDER:

E. H. MESTA, P.E.
Chief, Engineering Division

AGENDA

BRIEFING FOR MG READ ON DATUM
CHANGES IN SOUTHERN LOUISIANA
Lower Mississippi Valley Division Office
Vicksburg, MS
10 April 84

Tuesday - 10 April 1984 (Post Office Building , Room 402)

10:00 a.m.....Welcome and Opening Remarks by General Read, Introduction of Mr. Zilkoski to group by Mr. Frank Johnson

10:10 a.m.....Presentation of Briefing by Mr. Zilkoski (NGS)

10:40 a.m.....Question and Answer Period

10:50 a.m.....Presentation by Mr. Harrington (NOD) - Specific Problems In the NOD related to Datum Adjustments

11:15 a.m.....Floor Open For General Discussion

12:00 a.m.....LUNCH

1:00 to 3:00 p.m.....Conference Room Available if needed

*Introduce Mr. Harrington

ote: Tom ! This is tentative only, and may be adjusted later, however, I believe this is basically the way it will go.

FACSIMILE HEADER SHEET
(FR 105-1-5)

(Name)	OFFICE SYMBOL	TELEPHONE NO.	SENDER'S SIGNATURE		
N. Johnson	LMVED-TS	Ex. 5935	Frank O. Johnson		
(Name)	OFFICE SYMBOL	TELEPHONE NO.	PAGES	PRECEDENCE	DTG
rrington	LMVED-M	Ex. 2592	1	Priority	3 Apr 84

NGVD Change

Meeting of COE with NGS
9-10 Apr 84, Vicksburg, Miss.

Thoughts

Time Considerations

1. Past
2. Present
3. Future 50 year-100 year

Sources of Change

1. Consolidation of overburden 50,000'±
2. Mineral removal
3. Sea Level change
4. Bedrock subsidence
5. Loss of overbank building by sediments
6. Survey corrections and adjustments

Where (How)

1. Coastal lands
2. Continental shelf
3. River valleys
4. Uplands
5. Metropolitan-cities-urban-countryside

1. Straightline
2. Progressive
   a. accelerating
   b. deceleration
3. Site specific
4. Sudden

Projects impacted

1. Projects in place.
2. Projects under construction
3. Projects under design
4. Future projects
5. Concerns not specifically related to projects but of concern.
   a. FIA
   b. Gages

Types of Projects

1. Flood Control
   a. Levees
   b. Drainage canals
   c. Pumping stations
   d. Drainage structures
   e. Combinations

Organizations Concerned

1. Federal - COE, SCS, FIA, USCG, etc.
2. State
3. Local governments
4. Public
5. Private
6. General public

2. Navigation
   a. Deepdraft
   b. Shallow draft
   c. Structures
   d. Combinations

3. Freshwater Diversion
   a. Dilution
   b. Wildlife

Datum Planes

MSL]
MSG]
NGVD]

How defined
How established
How monitored
Reference point(s)

NGVD Network

1. How run
2. Computer techniques
3. Future methodology & outlook

Engineering Disciplines Concerned		
Hydraulics	-	Flowlines Gages Storage areas Tidal surges Sea level
Foundations	-	Stability (F of S) Geology
Design	-	Levee Floodwall grades Pile penetrations Structural adequacies
Surveying	-	Benchmarks Gages
Drafting	-	Mapmaking

Scenario: NGVD Change Impacts on Levee Status

Problem: Generally along the Mississippi River Levees and Atchafalaya Basin Levees the change in the datum is about .5 foot.

Discussion:

1. An analysis of the impacts is complex because of the following factors:

a. Is the flowline falling at the same rate as the ground is subsiding?

b. Is the change in channel capacity a function of the datum change or other factors, primarily degradation of the channel cross section the reason for the increase?

c. What are the tidal influences and what is the extent of sea level change?

2. a. These major main stem levees are _____ miles long (_____ MRL; Atch W, E, & R). Using the current flowline and datum, _____ miles of MRL and _____ miles of Atchafalaya levees were below grade. A .5 foot adjustment would have _____ miles of MRL and _____ miles of Atchafalaya Levees below grade.

b. While we do not undertake raising of earthen levees of less than 1 foot to restore freeboard, we do have areas now on the order of .5 to .9 foot too low and the .5 foot adjustment will equal or exceed 1 foot.

c. Because of poor foundation conditions and restricted areas, we have and are continuing to construct floodwalls as part of the protective system. Corrections to sheet pile walls, while undesirable is possible, but usually correction to T-walls will result in overstress or non-correction to higher flood frequency overtopping.

d. Both of these levee systems contain flood control structures. On the Mississippi we have the overbank, low, sill, auxiliary and lock structures at Old River; Morganza structure and floodway, Bonnet Carre structure; Harvey, Algiers and IHNC Locks, and soon Caernarvon Structure. Th state also has Empire Lock. In the Atchafalaya system we have by Sorrel, Berwick, Beouf Locks, Charenton floodgate, E & W Columet floodgates, and Uppe Pointe Coupee Control Structure, Wax Lake West Control Structure and _____ pumping stations. Because of a recent adjustment in flowline, several of these facilities may require modification or replacement. Any datum change will accentuate the need for replacement or modification.

3. Our concerns for the protective system are accuentated if the prediction are for continued settlement. If a steady but relatively slow settlement continues, then in all probability, devwelopment within the protected area will continue and we will continue to raise the protective system to protect the improvements.