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QUESTIONNAIRE FOR DEVELOPERS AND USERS OF TURBIDITY LIMITS

Drawing on the collective knowledge of CEDA members and other experts in the field, this questionnaire will help to inform guidance and best practice in setting and working with turbidity limits. CEDA is inviting its members and other stakeholders, whether regulator, project owner, contractor, or consultant, to complete the questionnaire and give us an insight to the challenges faced around turbidity limits. Your responses will be used to develop an information paper which all respondents will have access to.

This questionnaire consists of four parts and please only cover one project per questionnaire when responding:

Part 1 – establishes project type and conditions

Part 2 – investigates how turbidity limits were set for the project

Part 3 – deals with monitoring effort and set up for the project

Part 4 – covers responses and exceedance procedures/efforts

Your project information is confidential and will only be used in a statistical manner for the information paper without disclosure of the source.

*Required

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Part 1: General information

1. Project name *

Please respond "Anonymous" if you are not at liberty to say.

2. Project location *

Please provide the name of the country.

3. Project owner/industry *

- Oil and Gas Industry
- Resource Company (e.g. coal, minerals, gravel)
- Energy Sector (e.g. power plants, SWAC, offshore windfarms)
- Harbour Owners (private)
- Harbour/Port Authorities
- Governmental dept/Ministry/Agency
- Anonymous
- Other:

4.a. Project duration: start date *

4.b. Project duration: completion date *

5. Your role in the project: *

- Permit issuer
- Permit holder: Contractor
- Permit holder: Owner
- Contractor / sub-contractor (not permit holder)
- Control/Compliance Authority
- Consultant
- Stakeholder

6. Type of project: *

Please select all that apply.

- Capital Dredging Works
- Maintenance Dredging Works
- Remedial Dredging Works
- Wet Construction Works
- Other:

7. In what waterbody was the dredging project area? *

Please select all that apply

- Coastal waters
- Offshore
- Estuary
- Fresh water: River
- Fresh water: Lake
- Other:

8.a. Type of dredged material: *

Please select all that apply

- Silt
- Clay
- Sand
- Rock
- Mixed
- Other:

8.b. Is the dredged material considered contaminated (PCBs, heavy metals, radio-active...)?

- Yes
- No
- Not sure

8.c. What dredge equipment was involved in the project?

Please select all that apply

- Cutter Suction Dredger(s)
- Trailer Suction Hopper Dredger(s)
- Other Hydraulic Dredge Equipment (Eg. Suction Dredgers, DOP pumps)
- Backhoe Dredger(s)
- Grab Dredger(s)
- Other Mechanical Dredge Equipment (Eg. Bucket Ladders)
- Water injection Dredger(s)
- Agitation Dredger(s)
- Sweepbeam/Plough
- Other:

9. Dredging Project budget scales *

- <100 000 €
- 100 000 -1 000 000€
- 1 000 000-100 000 000 €
- >100 000 000 €

8.d. What type of dredged sediment placement techniques were used?

Please select all that apply

- Land placement/bunded reclamation areas
- Underwater placement (eg wet placement sites)
- Capping techniques
- Other:

Part 2: Setting turbidity limits

10. What was the purpose of the turbidity limit? *

Please select all that apply

- Protection of sensitive ecological receptor (e.g. flora, fauna, mangrove, coral, seagrass, aquaculture)
- Protection of other receiver sensitive areas: industrial (e.g. water intake)
- Protection of other receiver sensitive areas: recreational (e.g. swimming area)
- Political reasons (e.g. close to a border)
- Legal limit (national, regional, predefined)
- The reason was unknown
- Other:

11.a. How effective, was the turbidity limit, in your opinion? *

- Effective, the limit was set right to protect the sensitive areas
- Not effective, implementation of the limit did not contribute to the purpose; or was not workable?
- Unclear/Unknown

11.b. Please clarify and justify above answer:

12. In your opinion what was the relevance of the turbidity limit and its purpose? *

- Very relevant
- Relevant
- Not so relevant
- Absolutely not relevant

13.a. What type of turbidity limit was applicable to the project? *

Please select all that apply. In case of other, please specify and describe the turbidity limit

- Fixed limit: Absolute value (e.g. 20 NTU or 20 mg/l)
- Fixed limit: Excess value (above a background value)
- Variable limit: Seasonal
- Variable limit: Spatial
- Variable limit: Specific to the dredging method
- Variable limit: Intensity-Duration-Frequency



- Other:

13.b. Please describe the turbidity limits imposed

If applicable

14. If used, how were background values defined? *

- Historical: baseline at project site (defined prior to dredging)
- Reference sites
- Local ad hoc measurements
- Through modelling
- Other:

Part 3: Monitoring & Turbidity Limits

15.a. Where were turbidity limits set? *

Please select all that apply

- Around turbidity source: i. Project site boundaries
- Around turbidity source: ii. at fixed/variable distance from turbidity-generating works
- At sensitive receptor sites
- In specific zones (e.g. high impact, moderate impact, influence) but not necessarily at a fixed location

15.b. Please describe the locations where turbidity limits were set:

Clarify above. Please include applicable units, e.g. Meters, Kilometers between source and turbidity limit location.

16. At what depth were turbidity limits set? *

Please select all that apply

- Surface
- Bottom
- Depth averaged
- Unspecified/unknown
- Other:

17. What were turbidity limits based on? *

Please select all that apply

- No scientific basis
- Linked to sensitive receptors: Ecological
- Linked to sensitive receptors: Social/Recreational/Political
- Linked to sensitive receptors: Industrial (e.g. intakes, desalination)
- Previous or nearby project
- National/International guidelines/laws
- Other:

18. Were any other parameters used for setting compliance limits? *

Please select all that apply

- Light attenuation
- Spill budget
- Sedimentation
- Ecological parameters
- No other parameters were used
- Other:

19.a. Monitoring set up: *

Please select all that apply

- Sentinels (at "fixed" distances around the dredging activities)
- Fixed sites
- Mobile monitoring
- Spill monitoring
- Remote Sensing Images (satellite, UAV)
- None

- Other:

19.b. Who was contractually responsible for the monitoring of the turbidity?

- Contractor
- Owner
- Permitting Authority
- (Another) Governmental Authority
- Other:

Part 4: Response/Exceedance procedures/Impact

In the event that turbidity limits were exceeded please tell us...

20. What type of response was initiated when exceeding turbidity limits? *

- Increase monitoring efforts
- Adapt (e.g. less overflow, or lower dredging rates, pump speed,)
- Move (change location of dredging)
- Stop (stop dredging)
- Combination of above
- Unknown
- Other:

21. How much delay did the limit cause (through exceedance or stop orders)? (* this depends of course on the project duration) *

- None
- Minor delay (hours)
- Major delay (days)
- Extreme delay (weeks)
- Unknown

22. How much did the monitoring and reporting of the turbidity limits cost? *

- < 1 % of the budget
- 1-5% of the budget
- 6-10% of the budget
- > 10 % of the budget
- Unknown

23. What was the cost impact relating to the exceedance (e.g. lost time, standby costs, fines)?*

- < 1 % of the budget
- 1-5% of the budget

- 6-10% of the budget
- > 10 % of the budget
- Unknown

24. What turbidity-reducing measures have been implemented in the project?

Please select all that apply

- Reduced overflow
- No overflow
- Tide-dependent dredging
- Environmentally friendly dredging material (eg. closed bucket, turbidity reducing valves)
- Pro-active Dredge Management (online forecast plume modelling)
- Silt screens
- Other:

Final remarks

Any further comments?

Thank you for your feedback!