APPENDICE N

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Cronoprogramma delle Attività di Monitoraggio Ambientale

Doc. No. P0012454-1-H5 Rev.2 – Aprile 2020

ENVIRONMENTAL MONITORING SCHEDULE

Timeline: January 2019 – December 2026 (weekly/monthly columns), then 2027, 2028, 2029, 2030, 2031, 2032, 2033, To end life.

Milestones: TO DATE; PROJECT/PHASE 1 START ACTIVITIES (OTRANTO); PHASE 2.1 START ACTIVITIES (HDD PREPARATION); PHASE 2.2 START ACTIVITIES (HDD + OFFSHORE); PHASE 3 START ACTIVITIES (ONSHORE PIPELAY); PROJECT COMPLETION START PHASE 4 (PRE COMMISSIONING); PIPELINE READY FOR COMMISSIONING; START OPERATIONS

Activity	Scheduled monitoring (in time order)
START OF PROJECT CONSTRUCTION ACTIVITIES	
PHASE 1 - Otranto Station construction	
PHASE 2.1 - HDD Onshore preparation	
PHASE 2.2 - HDD Operation and Offshore pipelay	
PHASE 3 - Onshore pipelay	
PHASE 4 - Precommissioning	
Water Column (P0012454-1-H5, Rev.2 April 2020 - Section 6.1)	
Measure of water column physycal/chemical/biological parameters (AO 2 campaign in spring+fall period; CO 2 campaign during most significant phases; PO 2 campaign/first year + any further campaign until restoration)	AO 1 Fall period; AO 2 Spring period; CO 1-2 (to be defined according to detailed construction schedule); PO 1 Fall period; PO 2 Spring period
REPORTING (CO reporting to be defined according to detailed construction schedule)	◆
Dispersion of heavy metals from cathodic protection (PO - Prescription A12)	PO at startup; PO after 2 years of operation; PO after 5 years; PO Every 5 years
Sediments (P0012454-1-H5, Rev.2 April 2020 - Section 6.2 - dedicated Sediment Characterization Plan to be prepared - Prescription A2)	
Excavated sediments sampling and testing (AO - Prescription A2)	Sediments characterization A2 (latest date)
REPORTING (Included in Sediments Handling Plan - Prescription A2)	◆
Sediments quality - measure of surface physycal/chemical and microbiological parametrs of sediments and benthos (AO 1 campaign; CO 2 campaign upon end of most significant phases; PO 1 campaign/year for 3 years + any further campaign until restoration)	AO campaign (assumed contemporary to one of the water column monitoring campaigns); CO 1-2 (to be defined according to detailed construction schedule); PO 1 (assumed contemporary to one of the water column monitoring campaigns); PO 2 campaign; PO 3 campaign
REPORTING	◆
Turbidity and suspended solids (P0012454-1-H5, Rev.2 April 2020 - Section 6.3)	
Turbidimeter installation	(bar)
Turbidity/currents monitoring (AO turbidimeter continuous 1 year campaign - needed for A3)	AO continuous monitoring w. turbidimeter (A3)
Turbidity/suspended solids (AO 3 stations discontinuous monthly campaign - neeed for A3)	(monthly campaigns)
REPORTING (Needed for Modeling study - Prescription A3)	◆
Turbidity/currents/T/Salinity/suspended solids (dicontinuous 14 stations AO 2 campaign; CO 2 campaign during most significant phases)	AO 1-2 (discontinuous monitoring 14 stations - assumed same reference period as continuous monitoring); CO 1-2 (to be defined according to detailed construction schedule)
Turbidity (CO continuous w. turbidimeter - during offshore yard activities - Exit pit and HDD completion/pipeline pullback)	CO continuous during offshore yard activities (to be defined according to detailed construction schedule)
Turbidity (CO continuous w. dedicated vessel - during offshore yard activities - Exit pit and HDD completion/pipeline pullback)	CO continuous during offshore yard activities (to be defined according to detailed construction schedule)
REPORTING	◆
Marine biocoenoses (P0012454-1-H5, Rev.2 April 2020 - Section 6.4)	
Biocoenoses monitoring - Soft Bottom Sampling; Hard Bottom Photo acquisition; Posidonia PREI Index evaluation (Spring period; AO detailed post-authorization survey + 1 campaign Hard bottom photo acquisition only; CO 1 campaign; PO 1 campaign + further PREI Index 2 campaign + any further campaign until restoration)	AO (Hard bottom photo acquisition only - spring period); CO campaign during offshore activities (to be defined according to detailed construction schedule); PO 1; PO 2 (PREI Index only); PO 3 (PREI Index only)
REPORTING Needed also for Modeling study - A3)	◆
Biocoenoses mapping w. ROV monitoring (AO - Exit Point to 12 Nm - to exclude significant alterations to seabed w. presence of sensitive biocoenoses - Ufficio Parchi e Tutela Biodiversità and A3; CO - ROV assisted pipelay in case of seabed w. presence of sensitive biocoenoses; PO in case of seabed w. presence of sensitive biocoenoses)	AO campaign (to exclude significant alterations to seabed w. presence of sensitive biocoenoses - Ufficio Parchi e Tutela Biodiversità and A3); CO (ROV assisted pipelay in case of seabed w. presence of sensitive biocoenoses); PO (in case of seabed w. presence of sensitive biocoenoses)
REPORTING (Needed also for Modeling study - A3)	◆
Fish Fauna (P0012454-1-H5, Rev.2 April 2020 - Section 6.5)	
Fish fauna monitoring (visual census and scientific fishing - species identification; Abundance; Size; Gender and Sexual Maturity) (AO 4 seasonal campaign/year; CO seasonal campaigns; PO 4 seasonal campaigns/first year + any further campaign until restoration) and REPORTING.	AO 1-2-3-4 (4 seasonal campaign within one year period before start activities); CO seasonal campaigns (to be defined according to detailed construction schedule); PO 1-2-3-4 (4 seasonal campaign within one year frm end works)
Marine Mammals and Sea Turtles (P0012454-1-H5, Rev.2 April 2020 - Section 6.6)	
Presence of Monk seal (realtime/near realtime w. phototrap - AO 1 campaign; CO continuous during offshore yard activities) and REPORTING	AO; CO
MMO and PAM monitoring (CO) and final REPORTING	CO
Liason with stranding network (CO) and REPORTING	CO
Underwater Noise (P0012454-1-H5, Rev.2 April 2020 - Section 6.7)	
Acoustic environment at closest caves (AO 1 campaign w. fixed system; CO 1 spot survey during most significant phase w. mobile system) and REPORTING	AO at closest caves; CO (one survey during most significant phase - to be defined according to detailed construction schedule)
Acoustic environment at offshore yard area (AO 1 spot survey, CO 1 spot survey during most significant phase) and REPORTING	AO; CO (one survey during most significant phase - to be defined according to detailed construction schedule)
Air Quality (P0012454-1-H5, Rev.2 April 2020 - Section 7.1)	
Mobile air quality/meteo monitoring stations (AO campaign 2019/2020; CO 8 monitoring weeks/year).	AO 1; AO 2; CO (2-4 campaign/year to be defined according to detailed construction schedule)
Passive samplers (AO campaign 2019/2020; CO 8 monitoring weeks/year)	AO 1; AO 2; CO (2-4 campaign/year to be defined according to detailed construction schedule)
REPORTING	◆
Natural gas monitoring (PO - Operation phase, 2 campaign/year - Prescription A43) and REPORTING	PO - Operation phase, 2 Campaign/year
Groundwater (P0012454-1-H5, Rev.2 April 2020 - Section 7.3); Hydrogeological Plan to be prepared - A4; Groundwater Monitoring Plan (P0012454-1-H7 Rev.2 March 2019 - A4)	
Soil blank Otranto Station (AO)	BH5bis-BH6bis; P10
Level monitoring Otranto Station area (AO - Frequency: quarterly/monthly for at least 4 month before start of activities; CO monthly; PO quarterly until 2 years after start operations)	AO 1; AO 2; AO 3; AO 4; AO 5; AO 6; AO 7; AO 8; AO 9; AO 10; AO 11; AO 12; AO 13; AO 14; AO 15; CO 1 – CO 18; PO 1 – PO 13
Quality monitoring Otranto Station area (AO - Frequency: wet and dry season; CO/PO - frequency quarterly until 2 years after start operations)	AO Wet period 1; AO Dry period 1; AO Dry period 2; AO Wet period 2; AO Dry period 3; AO Wet period 3; CO 1 – CO 6; PO 1 – PO 13
REPORTING - OTRANTO STATION	◆
Soil blank HDD (AO)	Assumed as latest date
Level monitoring HDD (AO - Frequency: quarterly/monthly for at least 4 month before start of activities; CO monthly; PO quarterly until 2 years after start operations)	AO 1 – AO 5; CO 1 – CO 7; PO 1 – PO 11
Quality monitoring HDD (AO - Frequency: wet and dry season; CO/PO - frequency quarterly until 2 years after start operations)	AO Wet period; AO Dry period; CO 1 – CO 3; PO 1 – PO 11
REPORTING HDD	◆
Soil blank Onshore pipeline (AO)	Assumed as latest date considering piezometers ready before spring period 2021 (4 seasonal groundwater monitoring + 2 wet/dry periods monitoring)
Level monitoring Onshore pipeline (AO - Frequency: quarterly/monthly for at least 4 month before start of activities; CO monthly; PO quarterly until 2 years after start operations)	AO 1 – AO 9; CO 1 – CO 8; PO 1 – PO 11
Quality monitoring Onshore pipeline (AO - Frequency: wet and dry season; CO/PO - frequency quarterly until 2 years after start operations)	AO Wet period 1; AO Dry period 1; AO Wet period 2; AO Dry period 2; CO 1 – CO 3; PO 1 – PO 11
REPORTING ONSHORE PIPELINE	◆
Seasonal groundwater level monitoring (AO P3-P4-P5-P6 - Prescription A4)	Spring period; Summer period; Fall period; Winter period
SPT and disturbed/undisturbed subsoil sampling and testing (AO P3-P4-P5-P6 - Prescription A4)	Assumed contemporary to piezometer boring
REPORTING GEO/HYDROGEO/GEOTECH SURVEY (AO Needed for A4)	◆
Soil (P0012454-1-H5, Rev.2 April 2020 - Section 7.4); Soil Characterization Plan (P0012454-1-H6 rev.1 March 2019 - A10a)	
Soil monitoring and characterization Otranto station (AO monitoring and characterization prescription A10a)	Soil AO monitoring and characterization - A10a
REPORTING Soil characterization Otranto station (Included in Excavated materials Reuse Plan - A10a)	◆
Soil monitoring Otranto station (CO periodic verification; PO 1 campaign temporary yard area only)	CO periodic verification; PO (Otranto Station construction); CO (Precommissioning) periodic verification; PO (Precommissioning)
Topsoil monitoring Otranto station (AO - 1 campaign; CO periodic verification; PO 1 campaign upon end works + 1 campaign/year for five years in temporary yard area only)	AO (assumed contemporary to characterization); CO periodic verification; CO (Precommissioning) periodic verification; PO 1; PO 2 (temporary yard area only); PO 3 (temporary yard area only); PO 4 (temporary yard area only); PO 5; PO 6
Soil compaction monitoring Otranto station (AO 1 campaign; CO 1 campaign prior to yard area reinstatement)	AO (assumed contemporary to characterization); CO campaign prior to reinstatement (temporary yard area)
REPORTING OTRANTO STATION	◆
Soil monitoring and characterization HDD (AO monitoring and characterization prescription A10a)	Characterization assumed before piezometers (actual schedule to be defined based on UXO)
REPORTING Soil characterization HDD (Included in Excavated materials Reuse Plan - A10)	◆
Soil monitoring HDD (CO periodic verification; PO 1 campaign)	CO Periodic verification; PO (assumed contemporary to topsoil monitoring)
Topsoil monitoring HDD (AO 1 campaign; CO periodic verification; PO 1 campaign upon end works + 1 campaign/year for five years)	AO (assumed contemporary to soil chacterization); CO Periodic verification; PO 1 - End of works (assumed consecutive to construction); PO 2; PO 3; PO 4; PO 5; PO 6
Soil compaction monitoring HDD (AO 1 campaign; CO 1 campaign prior to yard area reinstatement)	AO (assumed contemporary to soil chacterization); CO campaign (prior to reinstatement)
REPORTING HDD	◆
Soil monitoring and characterization Pipeline (AO monitoring and characterization prescription A10a)	Characterization assumed before piezometers (actual schedule to be defined based on UXO)
REPORTING Soil characterization Pipeline (Included in Excavated materials Reuse Plan - A10)	◆
Soil monitoring onshore pipeline (CO periodic verification; PO 1 campaign)	CO periodic verification; PO (assumed contemporary to topsoil monitoring)
Topsoil monitoring Pipeline (AO 1 campaign; CO periodic verification; PO 1 campaign upon end works + 1 campaign/year for five years)	AO (assumed contemporary to soil chacterization); CO periodic verification; PO 1 - End of works (assumed consecutive to construction activities); PO 2; PO 3; PO 4; PO 5; PO 6
Soil compaction monitoring Pipeline (AO 1 campaign; CO 1 campaign prior to yard area reinstatement)	AO (assumed contemporary to soil chacterization); CO campaign (prior to reinstatement)
REPORTING PIPELINE	◆
Noise and vibrations (P0012454-1-H5, Rev.2 April 2020 - Section 7.5)	
Noise/vibration monitoring Otranto Station (AO; CO 1 campaign in the most significant phase + non-acoustic verification; PO - MR09-10-11) and REPORTING	AO 1; AO 02; CO Campaign in the most significant phase + non-acoustic verification(to be defined according to detailed construction schedule); PO 1 at startup; PO 2
Noise/vibration monitoring HDD (AO; CO 1 campaign in the most significant phase + non-acoustic verification) and REPORTING	AO; CO Campaign in the most significnt phase + non-acoustic verification (to be defined according to detailed construction schedule)
Noise monitoring Pipeline (AO; CO 1 campaign according to detailed schedule + non-acoustic verification) and REPORTING	AO; CO Campaign + non-acoustic verification (to be defined according to detailed construction schedule)
Noise monitoring - Precommissioning phase (CO MR09-10-11 + non-acoustic verification) and REPORTING	CO + non-acoustic verification (Precommissioning)
Terrestrial vegetation, flora and fauna (P0012454-1-H5, Rev.2 April 2020 - Section 7.6)	
Wintering Birds (AO campaign 2019/2020; CO 7 surveys/year; PO 7 surveys + any further campaign until restoration)	AO 1; AO 2; AO 3-4-5; AO 6-7-8; AO 9; CO 1-2-3-4-5-6-7; CO 8-9-10-11-12-13-14; PO 1 to 7
Migrant birds + Birds of prey (AO campaign 2019/2020; CO 17 surveys/year; PO 17 surveys + any further campaign until restoration)	AO 1; AO 2; AO 3; AO 4; AO 5-6-7; AO 8-9-10; AO 11-12-13; AO 14-15-16; AO 17; AO 18-19-20; AO 21; CO 1-2-3; CO 4-5-6-7-8; CO 9-10-11-12-13-14-15-16-17-18-19-20; CO 21-22-23-24-25; CO 26-27-28-29-30-31-32-33-34-35-36-37; PO 1 to 12; PO 13 to 17
Nesting birds + Albanella minore (AO campaign 2019/2020; CO 10 surveys/year; PO 10 surveys + any further campaign until restoration)	AO 1; AO 2; AO 3; AO 4-5-6; AO 7-8-9; AO 10-11-12; CO 1-2-3; CO 4-5-6-7-8-9-10-11-12-13; CO 14-15-16-17-18-19-20-21-22-23; PO 1 o 10
Sensitive birdfauna nesting in project area (AO campaign - Otranto Station area; CO verification every 10 days for the period April-July for ongoing construction activities)	AO verification every 10 days; CO verification every 10 days; CO Verification every 10 days; CO Verification every 10 days
Reptiles and Amphibia (AO campaign 2019/2020; CO 4 surveys/year; PO 4 surveys + any further campaign until restoration)	AO 1; AO 2; AO 3-4-5; CO 1-2-3-4; CO 5-6-7-8; PO 1 to 4
Land mammals (AO campaign 2019/2020; CO 4 surveys/year; PO 4 surveys + any further campaign until restoration)	AO 1; AO 2; AO 3; AO 4; CO 1; CO 2; CO 3; CO 4; CO 5; CO 6; CO 7; CO 8; CO 9; PO 1-2-3; PO 4
Bats (AO campaign 2019/2020; CO 3 surveys/year; PO 3 surveys + any further campaign until restoration)	AO 1; AO 2; AO 3; CO 1; CO 2; CO 3; CO 4; CO 5; CO 6; CO 7; CO 8; PO 1; PO 2; PO 3
Vegetation (AO Campaign 2019/2020; CO 2 surveys/year; PO 2 surveys + any further campaign until restoration)	AO 1; AO 2 (Stipa and woods); CO 1 (Stipa and woods); CO 2; CO 3; CO 4; CO 5; PO 1; PO 2
Soil storage, rooting of restored Thero-brachypodieta and reinstated areas (CO 4 surveys/year; PO 1 survey/year for 3 years)	CO 1-2-3-4; CO 5-6-7-8; PO 1; PO 2; PO 3
Corine Biotopes monitoring (AO 2019; PO 1 campaign at end of third year after work completion)	AO; PO
REPORTING	◆
Waste (P0012454-1-H5, Rev.2 April 2020 - Section 7.7)	
Identification of disposal facilities and logistics - Otranto station (AO campaign; CO periodic verification; PO verification of reinstatment of temporary waste storage areas and periodic verification during Otranto station operation) and REPORTING	AO; CO Periodic verification and monthly waste recording; PO (reinstatement temporary storage areas assumed consecutive to end works); PO Periodic verification and monthly waste recording
Waste monitoring - precommissioning phase (CO periodic verification; PO verification of reinstatment of temporary waste storage areas) and REPORTING	CO Precommissioning - Periodic verification and monthly waste recording; PO (assumed consecutive)
Identification of disposal facilities and logistics - HDD+Pipeline (AO campaign; CO periodic verification; PO verification of reinstatment of temporary waste storage areas) and REPORTING	AO (latest date); CO Periodic verification and monthly waste recording; PO (assumed consecutive to construction activities)
Landscape (P0012454-1-H5, Rev.2 April 2020 - Section 7.8)	
State of places, census of landscape elements and verification of yard area extension - Otranto station (AO campaign; CO 1 campaign + periodic verification; PO 1 campaign after end works+1 campaign after 1 year operations + 1 campaign after 3 years operations) and REPORTING	AO 1; AO 2 (Integrative monitoring to comply w. updated EMP); CO (Upon start works); CO Periodic verification; PO 1 Otranto Station (assumed at end construction works); CO Pre-commissioning (upon start phase); CO Pre-commissioning - Periodic verification; PO 1 Precommissioning; PO 2; PO 3
State of places, census of landscape elements and verification of yard area extension - HDD (AO campaign; CO 1 campaign + periodic verification; PO 1 campaign after end works+1 campaign after 1 year operations + 1 campaign after 3 years operations) and REPORTING	AO (latest date); CO (Upon start works); CO Periodic verification; PO 1 (assumed at end construction works); PO 2; PO 3
State of places, census of landscape elements and verification of yard area extension - Pipeline (AO campaign; CO 1 campaign + periodic verification; PO 1 campaign after end works+1 campaign after 1 year operations + 1 campaign after 3 years operations) and REPORTING	AO (at the latest); CO (Upon start works); CO periodic verification; PO 1 (assumed at end construction works); PO 2; PO 3

LEGENDA

- Construction Activities (blue)
- Monitoring activities (yellow)
- ◆ Reporting to Authorities

Note: Environmental Monitoring schedule shall be read in conjunction with the Environmental Monitoring Plan-EMP, which shall in any case prevail.

Survey reference month or period of execution are indicated (i.e. the indicated number of monitoring campaign shall be carried out within the reference month/period).

Survey schedule are set based on "latest date" approach, where indicated, in line with IGI Poseidon Compliance Plan (survey schedule may be anticipated based on detailed construction schedule).

CO reporting schedule is preliminary assumed based on project schedule to date. It has to be considered that actual CO reporting schedule will be defined based on final activities schedule.