

Environmental Management System for Biosolids

Document 03.5 – Stickney WRP CCP Table

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Biosolids Value Chain	Critical Control Point	Operational Controls	Potential Environmental Impacts	Monitoring/Measuring/Record Keeping	Primary Person Roles/Responsibilities
Wastewater Collection and Pretreatment	Residential Discharges	<ul style="list-style-type: none"> Public Outreach Household hazardous waste collection(HHW) 	<ul style="list-style-type: none"> Poor surface water quality Metals accumulation in biosolids 	<ul style="list-style-type: none"> # Educational outreach events HHW Event Summaries 	Section 072 Public and Intergovernmental Affairs Officer (X16626); Section 643 SE (X16553)
	Industrial Discharges	<ul style="list-style-type: none"> Permits – DA Pretreatment Inspections SPCC Plans (Spill) TOMP Plans (Toxics) Sewage & Waste Control Ordinance Field Surveillance and Enforcement Action Regulated community outreach 	<ul style="list-style-type: none"> Pipe Corrosion Process upsets – poor quality surface water & biosolids Metals accumulation in biosolids Violation of NPDES Permit Fish kills Explosions 	<ul style="list-style-type: none"> Random Sampling Inspections Continuous Sampling Interceptor Sampling IEPA Annual Pretreatment Report Notices of Noncompliance Cease and Desist Orders Semi-annual Continued Compliance Reports Discharge Authorizations # of outreach events 	Section 192 Supervising Environmental Specialist (X13050) Section 194 PCO III / Supervising Environmental Specialist (X84197) PCO III / Supervising Environmental Specialist (X84199)
	Spills into Collection System	<ul style="list-style-type: none"> Sewage & Waste Control Ordinance Enforcement Regulated community outreach 		<ul style="list-style-type: none"> Incident Report # of outreach events 	Section 194 PCO III / Supervising Environmental Specialist (X84197) PCO III / Supervising Environmental Specialist (X84199)



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Wastewater Treatment & Solids Generation	Screening & Grit Removal	<ul style="list-style-type: none"> Operate timed, differential head or manual 	<ul style="list-style-type: none"> Equipment failure/process overload Poor quality biosolids 	<ul style="list-style-type: none"> Volume (CY) of debris removed. Operator logs 	Section 934 ACOE (X83322) - SW Screens; Section 932 TPO III (X84079) - WS Screens
	Primary Treatment Primary Settling (SW) Imhoff Tanks (WS)	<ul style="list-style-type: none"> Primary and Imhoff sludge withdrawal No. of basins in service Operations SOPs 	<ul style="list-style-type: none"> Odor Excess loading to secondary treatment Poor quality biosolids 	<ul style="list-style-type: none"> % Solids Operator logs 	Section 932 TPO III (X84079)
	Secondary Treatment Aeration Tanks Final Settling Tanks	<ul style="list-style-type: none"> NPDES Permit No. IL0028053 DO, MLSS, SRT, RAS rate, WAS rate, Feed rate Operations SOPs 	<ul style="list-style-type: none"> NPDES Permit Violation Poor quality surface water Poor quality biosolids Odor 	<ul style="list-style-type: none"> Operator logs Daily reports NPDES permit parameters Microscopic examination DO, SS, SVI, F/M, Blanket level, RAS, WAS, MLSS, BOD, NH3, pH 	Section 932 TPO III (X84079) Section 122 Associate Environmental Research Scientist (X83472)
	Sludge Pipeline to SWRP	Refer to the Terrence J. O'Brien WRP CCP			
	Liquid Transportation	Refer to the Lemont WRP CCP			



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Solids Stabilization & Dewatering	Sludge Conditioning (WASSTRIP)	<ul style="list-style-type: none"> Detention Time 	<ul style="list-style-type: none"> Additional phosphorus discharge 	<ul style="list-style-type: none"> Total phosphorus Polymer dosage Operator logs 	Section 934 ACOE (X83322)
	Pre-Digestion Screening	<ul style="list-style-type: none"> Operate timed, differential head or manual 	<ul style="list-style-type: none"> Equipment failure/process overload Poor quality biosolids 	<ul style="list-style-type: none"> Volume (CY) of debris removed Operator logs 	Section 934 ACOE (X83322)
	Solids Gravity Thickening	<ul style="list-style-type: none"> Detention Time 	<ul style="list-style-type: none"> Odor Poor quality biosolids 	<ul style="list-style-type: none"> % solids, blanket level Operator logs Recycle 	Section 934 ACOE (X83322)
	Pre-Digestion Centrifuge	<ul style="list-style-type: none"> Feed Rate Polymer dosage Centrifuge SOPs 	<ul style="list-style-type: none"> Odor Poor quality biosolids 	<ul style="list-style-type: none"> % Solids (feed, cake and centrate) Polymer dosage Operator logs 	Section 934 ACOE (X83322)
	Anaerobic Digestion	<ul style="list-style-type: none"> Feed & draw rates Temperature Mean cell residence time Digester SOPs 	<ul style="list-style-type: none"> Odor Poor quality biosolids 	<ul style="list-style-type: none"> VS destruction Methane produced Volatile acids/alk. pH Temperature Detention time Operator logs 	Section 934 ACOE (X83322)
	Post-Digestion Centrifuge	<ul style="list-style-type: none"> Feed Rate Polymer dosage Centrifuge SOPs 	<ul style="list-style-type: none"> Odor Poor quality biosolids 	<ul style="list-style-type: none"> % Solids (feed, cake and centrate) Polymer dosage Operator logs Cake production 	Section 934 ACOE (X83322)
	Conveyors	<ul style="list-style-type: none"> Continuous - manual 	<ul style="list-style-type: none"> Equipment failure/ Process overload Spillage 	<ul style="list-style-type: none"> Volume of Biosolids Operator Log 	Section 934 ACOE (X83322)



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Centrate Conditioning	Phosphorus Recovery (Ostara)	<ul style="list-style-type: none"> Flow Chemical feed 	<ul style="list-style-type: none"> Additional Phosphorus discharge 	<ul style="list-style-type: none"> Product shipped Operator logs 	Section 934 ACOE (X83322)
Solids Transport	Pump to Lagoon (low solids)	<ul style="list-style-type: none"> Flow Pressure 	<ul style="list-style-type: none"> Runoff to canal – degrade water quality 	<ul style="list-style-type: none"> Volume % solids Operator logs 	Section 934 ACOE (X83322)
	Rail to LASMA	<ul style="list-style-type: none"> Spill plan Loading SOPs 	<ul style="list-style-type: none"> Odor Spills 	<ul style="list-style-type: none"> Solids transported Operator logs 	Section 934 ACOE (X83322)
	Truck Loading/Transport	<ul style="list-style-type: none"> Spill plan Loading/Hauling SOPs Vehicle maintenance Scale Operation SOP 	<ul style="list-style-type: none"> Odor Spills Dust Water pollution Truck noise & air pollution 	<ul style="list-style-type: none"> Solids transported Solids File:%TS and daily tons Truck scale records Operator logs 	Section 934 ACOE (X83322)
Solids Stabilization & Drying	Lagoons	<ul style="list-style-type: none"> Lagoon Operation SOP Sampling SOP Holding Time 40 CFR 503 Requirements 	<ul style="list-style-type: none"> Odor Poor quality biosolids Groundwater contamination 	<ul style="list-style-type: none"> % solids Fill/empty start date Lagoon records Lysimeters and groundwater monitoring wells 	Section 652 PE (X84303) Section 123 Supervising Environmental Soil Scientist (X84201)
	Air Drying (Low-solids & High-solids)	<ul style="list-style-type: none"> IEPA Permit Nos. 2014-AO-58836 2015-AO-59623 Air Drying SOP Odor Control SOP 40 CFR 503 Requirements Sampling SOP 	<ul style="list-style-type: none"> Odor Poor quality biosolids Dust Groundwater contamination 	<ul style="list-style-type: none"> Pathogens testing for Class A IEPA Quarterly & Semi-annual Reports % solids IEPA operating permit parameters Lysimeters & groundwater monitoring wells 	Section 652 PE (X84303) Section 123 Supervising Environmental Soil Scientist (X84201)



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Biosolids Value Chain	Critical Control Point	Operational Controls	Potential Environmental Impacts	Monitoring/Measuring/Record Keeping	Primary Person Roles/Responsibilities
Solids Stabilization & Drying (Cont.)	Compost	<ul style="list-style-type: none"> • 40 CFR 503 Requirements • SOP For Compost • IEPA Permit No. 2017-013-DE/OP 	<ul style="list-style-type: none"> • Odor • Spills • Dust • Water pollution • Truck noise & air pollution 	<ul style="list-style-type: none"> • Temperature & Time • BS/WC/YW ratio • # of turns • Curing time • Screen size • Operator time 	Section 652 PE (X84303)
Biosolids Utilization	Controlled Solids Distribution	<ul style="list-style-type: none"> • IEPA Permit No. 2015-SC-59620 • 40 CFR 503 Requirements • 35 IAC 391 Requirements • Weather • IL Dept. of Agriculture Soil Amendment License No. 100181 	<ul style="list-style-type: none"> • Odor • Spills • Dust • Water pollution • Truck noise & air pollution 	<ul style="list-style-type: none"> • Solids transported • Solids File:%TS and daily tons • Truck scale records • Controlled Distribution User Forms • IEPA Quarterly & semi-annual report • IEPA operating permit parameters 	Section 652 PE (X84303) Section 123 Supervising Environmental Soil Scientist (X84201)
	Land Application	<ul style="list-style-type: none"> • IEPA Permit No. 2014-SC-58425 • 40 CFR 503 Requirements • 35 IAC 391 Requirements • Contract Specifications • Weather 	<ul style="list-style-type: none"> • Odor • Spills • Dust • Water pollution • Truck noise & air pollution 	<ul style="list-style-type: none"> • Solids transported • Solids File:%TS and daily tons • Truck scale records • IEPA Quarterly & semi-annual report • Contractor – Monthly Operating Report • NANI forms • User forms • Field inspections • IEPA operating permit parameters 	Section 652 PE (X84303) Section 123 Supervising Environmental Soil Scientist (X84201)



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Biosolids Value Chain	Critical Control Point	Operational Controls	Potential Environmental Impacts	Monitoring/Measuring/Record Keeping	Primary Person Roles/Responsibilities
Biosolids Utilization (Cont.)	Landfill Daily/Final Cover	<ul style="list-style-type: none"> • Daily/Final Cover Requirements • Landfill Permit • Contract/Agreement Specifications • Weather • Adjusted Std. 03-02 	<ul style="list-style-type: none"> • Odor • Spills • Dust • Water pollution • Trucking: noise & air pollution 	<ul style="list-style-type: none"> • Solids File: % TS, daily tons • Truck scale report • IEPA Quarterly & semi-annual report 	Section 652 PE (X84303)
	Landfill Disposal (Unsuitables)	<ul style="list-style-type: none"> • Contract Specifications • Permit Requirements 	<ul style="list-style-type: none"> • Odor • Spills • Dust • Water pollution • Truck noise & air pollution 	<ul style="list-style-type: none"> • Solids File: %TS, daily tons • Truck scale report • IEPA Quarterly & semi-annual reports 	Section 652 PE (X84303)
	Pelletizing Facility	<ul style="list-style-type: none"> • 40 CFR 503 requirements • 35 IAC 391 requirements • Contract Specifications 	<ul style="list-style-type: none"> • Odor • Spills • Dust • Water Pollution • Truck noise & air pollution 	<ul style="list-style-type: none"> • Amount hauled • IEPA monthly Quarterly & semi-annual reports • Contractor monthly report • NANI forms • Pellet % TS 	Section 651 ME (X84300)



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Odor Control Management	Mechanical Operations/ Solids Processing	<ul style="list-style-type: none"> Biofilter 	<ul style="list-style-type: none"> Odor 	<ul style="list-style-type: none"> Operator logs Odor patrol forms 	Section 934 ACOE (X83322)
	Solids Handling, Drying, Disposal	<ul style="list-style-type: none"> Odor Control SOP 	<ul style="list-style-type: none"> Odor 	<ul style="list-style-type: none"> Odor patrol forms Odor complaint forms Odor complaint log 	Section 652 PE (X84303) Section 122 Senior Environmental Research Scientist (X84070) Section 129 CE III (X84225)



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Revision History

Version Number	Version Date	Description of Revision
0	7/28/05	
1	8/17/05	Revised Operational Controls, Environmental Impacts, and Monitoring, Measuring and Recordkeeping Removed CCPs that do not play a role in biosolids management (TARP, Sewer Maintenance, Influent, Odor Control Management – Collection Facilities and Treatment Operation)
2	3/22/06	Added ground water contamination as a Potential Environmental Impact in the Solids Stabilization & Drying value chain. Added ground water monitoring wells and lysimeters to the Monitoring/Measuring/Record Keeping in the Solids Stabilization & Drying value chain.
3	4/12/07	Added “Odor Control SOP” for Air Drying (Low-solids & High-solids) CCP under the Operational Controls column. Replaced “amount hauled” with “solids file: %TS and daily tons” and “truck scale report” for Landfill Daily/Final Cover and Landfill Disposal (Unsuitable) CCPs under the Monitoring/Measuring/Record Keeping column. Added “regulatory community outreach” to the Industrial Discharge and Spills into Collection System CCPs under the Operational Control column. Added “# of outreach events” to the Industrial Discharge and Spills into Collection System CCPs under the Monitoring/Measuring/Recordkeeping column. Added the following to the Industrial Discharge CCP under the Monitoring/Measuring/Recordkeeping column: IEPA Annual Pretreatment Report, Notices of Noncompliance, Cease and Desist Orders, Semi-annual Continued Compliance Reports, and Discharge Authorizations. Added 35 IAC 391 (Title 35 of the Illinois Administrative Code Part 391) Requirements to Land Application and CSD CCPs under Operational Control column.
4	2/26/08	Replaced Public Information Coordinator with Manager of Public Affairs under the Primary Person Roles/Responsibilities column of the Residential Discharges CCP. Replaced Section 633 with Section 643 under the Primary Person Roles/Responsibilities column of the Residential Discharges CCP. Replaced Section 950 with Section 654 for all Solids Stabilization, Drying, and Biosolids Utilization CCPs. Removed Cake Lagoons and edited Low Solids Lagoons to read only “Lagoons” CCP.



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Version Number	Version Date	Description of Revision
5	3/11/09	Added Predigestion Screening to Biosolids Value Chain under the Critical Control Point column. Changed telephone for CE IV from (X84300) to (X84301) for all section 654 - Solids Stabilization, Drying and Biosolids Utilization CCPs.
6	8/24/09	Changed PCO III to PCO III / SES.
7	3/10/10	Added "Section 192 SES (X13050)" to the Industrial Discharge CCP under the Primary Person Roles/Responsibilities column. Added "40 CFR 503 Requirements" to the Lagoons CCP and the Air Drying (Low-Solids & High-Solids) CCP. The District's equivalent PFRP falls under these requirements when applicable. Changed "Soil Scientist" to "Supervising Soil Scientist (X84063)" on both the Lagoons CCP and the Air Drying (Low-Solids & High-Solids) CCP. Changed "R&D" to "M&R" and added the phone extension "(X84072)" to the Solids Handling, Drying, and Disposal CCP.
8	4/8/11	Added Section 122 Associate Environmental Research Scientist (X83472) to the Biosolids Value Chain CCP – Wastewater Treatment & Solids Generation – Secondary Treatment Aeration Tanks Final Setting Tanks under Primary Person Roles/Responsibilities column. Added Environmental to Supervising Soil Scientist (X84063) Section 123 to Biosolids Value Chain – Lagoons CCP under Primary Person Roles/Responsibilities column. Added Environmental to Supervising Soil Scientist (X84063) Section 123 to Biosolids Value Chain – Solids Stabilization & Drying Air Drying (Low-solids & High-solids) CCP under Primary Person Roles/Responsibilities column. Added Section 123 Supervising Environmental Soil Scientist (X84063) to Biosolids Value Chain – Controlled Solids Distribution CCP under Primary Person Roles/Responsibilities column. Added Section 123 Supervising Environmental Soil Scientist (X84063) to Biosolids Value Chain – Biosolids Utilization – Land Application CCP under Primary Person Roles/Responsibilities column. Added Pelletizing Facility to Biosolids Value Chain - Biosolids Utilization under Critical Control Point Column. Added 40 CFR 503 requirements, 35 IAC 391 requirements and Contact Specifications under Biosolids Value Chain – Biosolids Utilization - Operational Controls column. Added Odor, Spills, Dust, Water Pollution and Track noise & air pollution to Biosolids Value



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Version Number	Version Date	Description of Revision
		Chain – Biosolids Utilization – under Potential Environmental Impacts column. Added Amount Hauled, IEPA monthly & semi-annual reports, Contractor monthly report, NANI forms and Pellet % TS to Biosolids Value Chain – Biosolids Utilization - under Monitoring/Measuring Record Keeping column. Added Section 932 – WS AETPO I (X84009) to Biosolids Value Chain – Biosolids Utilization under Primary Person Roles/Responsibilities column.
9	10/17/11	Edited Footer with Official Document Location
10	03/08/12	Primary Person Responsible: CEIV Section 654 changed to CEIII 652 throughout CCP Table Page 1, under Industrial discharges CCP, spelled out primary person responsible for Section 192 and 194 to read Supervising Environmental Specialist instead of SES.



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11	03/05/13	<p>Added “Solids File: %TS and daily tons” and “Truck scale records” under the Monitoring/Measuring/Record Keeping column for the Truck Loading/Transport CCP.</p> <p>Added “Scale Operation SOP” under the Operational Controls column for the Truck Loading/Transport CCP.</p> <p>Added “Sampling SOP” under the Operational Controls Column for the Lagoons CCP and the Air Drying (Low-solids & High-solids) CCP.</p> <p>Updated the IEPA Permit Numbers under the Operational Controls column for the Air Drying (Low-solids & High-solids) CCP, the Controlled Solids Distribution CCP, and the Land Application CCP.</p> <p>Removed the following: “# of agitations (only if documenting PFRP compliance)”; “Date loaded into cell” and “Date removed from cell”; and added “Pathogens testing for Class A” under the Monitoring/Measuring/Record Keeping column for the Air Drying (Low-solids & High-solids) CCP.</p> <p>Replaced “IEPA Monthly & Semi-annual Reports” with “IEPA Quarterly & Semi-annual Reports” under the Monitoring/Measuring/Record Keeping column for the Air Drying (Low-solids & High-solids) CCP, the Controlled Solids Distribution CCP, the Land Application CCP, the Landfill Daily/Final Cover CCP, the Landfill Disposal (Unsuitables) CCP, and the Pelletizing Facility CCP.</p> <p>Replaced “Amount hauled” with “Solids transported”, “Solids File: %TS and daily tons” and “Truck scale records” under the Monitoring/Measuring/Record Keeping column for the Controlled Solids Distribution CCP, and the Land Application CCP.</p> <p>Replaced “Contractor – monthly report” with “Contractor –Monthly Operating Report” under the Monitoring/Measuring/Record Keeping column for the Land Application CCP.</p> <p>Replaced “Contract Specifications” with “Contract/Agreement Specifications” under the Operational Controls column for the Landfill Daily/Final Cover CCP.</p> <p>Updated phone number for Supervising Environmental Soil Scientist to 84201 throughout.</p> <p>Updated phone number for Supervising Environmental Specialist to 84135</p> <p>Updated Title under Residential Discharge CCP for Sludge Line Changed to Terrence J. O'Brien WRP</p>



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Version Number	Version Date	Description of Revision
12	02/19/14	Updated Title from AETPO1 to Principal Engineer. Odor Control Management – Added proper title and extension for Responsible Person Added Conveyor CCP under Solids Stabilization and Dewatering.
13	04/26/16	Updated Permit Numbers Updated Roles and Responsibilities Added Compost as a Critical Control Point
14	03/22/17	Monitoring/Measuring/Record Keeping: Landfill Disposal: Removed Monthly IEPA reporting. Odor Control Measurement: Added Section 129 CEIII (X84225)
15	03/08/18	Updated Public & Intergovernmental Affairs Officer's section # from 071 to section 072. Updated Public & Intergovernmental Affairs Officer's ext. # from X17909 to X16626. Updated Title from CE III to SE for sections 643 and 652. Updated Title and Ext. # from CE IV (X84301) to PE (X84303) for section 652. Updated section #, Title and Ext. # of Primary Person responsible for Pelletizing Facility from section 652, CE IV (X84301) to section 651, CE V (X84300). Changed CCP under Wastewater Treatment & Solids Generation from Terrence J. O'Brien WRP Sludge Line to Sludge Pipeline to SWRP. Added Liquid Transportation as a CCP to Wastewater Treatment & Solids Generation. Added Sludge Conditioning (WASSTRIP) as a CCP to Solids Stabilization & Dewatering. Changed CCP under Solids Stabilization & Dewatering from Solids Concentration to Solids Gravity Thickening. Added BVC Centrate Conditioning with a CCP of Phosphorus Recovery (Ostara). Updated IEPA Permit No. from 2010-AO-0267 to 2015-AO-59623 under Solids Stabilization & Drying/Air Drying (Low-solids & High-solids)/Operational Controls. Added IEPA Permit No. 2017-013-DE/OP as an Operational Control under Solids Stabilization & Drying/Compost. Added IL Dept. of Agriculture Soil Amendment License No. 100181 as an Operational Control under Biosolids Utilization/Controlled Solids Distribution. Changed the Operational Control under Odor Control Management/Mechanical Operations/Solids Processing from Ozone Generation to Biofilter.