Environmental Management System for Biosolids Manual

King County
Department of Natural Resources and Parks
Wastewater Treatment Division
201 South Jackson Street, MS KSC-NR-0512
Seattle, Washington 98104
Phone: 206-263-3428 Fax: 206-684-2057

Record of Revisions

List of References

Glossary of Key Terms

POLICY

ELEMENT 1: EXECUTIVE SUMMARY
Organization of King County's Biosolids EMS Manual
Summary of King County, Wastewater Treatment Division

ELEMENT 2: BIOSOLIDS POLICY
SP-2-1: Establishing and Updating Biosolids Policy
SF-2-1: Policy Tracking
Code of Good Practice
King County Biosolids Policies
Mission Statement memo

PLANNING

ELEMENT 3: CRITICAL CONTROL POINTS
SP-3-1: Identifying and Updating Critical Control Points

ELEMENT 4: LEGAL AND OTHER REQUIREMENTS
SP-4-1: Identifying and Tracking Legal and Other Requirements
SD-4-1: List of Legal Requirements

ELEMENT 5: GOALS AND OBJECTIVES FOR CONTINUAL IMPROVEMENT
SP-5-1: Establishing and Updating EMS Project Goals and Objectives
SD-5-1: List of EMS Project Goals and Objectives
SP-5-2: Monitoring Progress Towards Goals and Objectives

ELEMENT 6: PUBLIC PARTICIPATION IN PLANNING
SP-6-1: Public Participation in Planning
SF-6-1: Public Participation Tracking Record

IMPLEMENTATION

ELEMENT 7: ROLES AND RESPONSIBILITIES
SP-7-1: EMS Roles and Responsibilities
SD-7-1: EMS Roles and Responsibilities
SP-7-2: Roles and Responsibilities for Biosolids Activities

SD-7-2: WTD Organizational Chart

ELEMENT 8: EMS AND BIOSOLIDS TRAINING
SP-8-1: EMS Training
SD-8-1: EMS Training Requirements
SP-8-2: Training on Biosolids Activities
SD-8-2: Training Requirements for Biosolids Activities

ELEMENT 9: COMMUNICATION PLANS
SP-9-1: EMS Communications Plan
SP-9-2: Biosolids Communications Plan
SP-9-3: Responding to Inquiries, Requests and Comments
SF-9-3: Communications Log

ELEMENT 10: OPERATIONAL CONTROLS
SP-10-1: Identifying and Updating Operational Controls and the Associated SOPs

ELEMENT 11: EMERGENCY PREPAREDNESS AND RESPONSE
SP-11-1: Emergency Preparedness and Response Plans and Procedures
SD-11-1: Description of Documents Covering Emergency and Preparedness Response Plans and Procedures

ELEMENT 12: DOCUMENTATION, DOCUMENT CONTROL AND RECORDKEEPING
SP-12-1: Document Management
SF-12-1: Level 2 Schedule for EMS Documents, Procedures and Records
SP-12-2: Records Management
SP-12-3: Management of Change
SF-12-2: Management of Change Record

MEASUREMENT AND CORRECTIVE ACTION

ELEMENT 13: MONITORING AND MEASUREMENT
SP-13-1: Monitoring and Measurement

ELEMENT 14: NONCONFORMANCES: CORRECTIVE & PREVENTIVE ACTIONS
SP-14-1: NonConformances For Day-to-Day Activities
SD-14-1: Corrective Action Flow Chart
SF-14-1: Corrective Action Record
SF-14-2: Operational Findings Tracking Log for SF-14-1
SF-14-3: Tracking for Corrective/Preventive Action Plans
SF-14-4: Nonconformance Tracking
SP-14-2: Major or Minor Formal Audit NonConformances
SD-14-2: Corrective Action Flow Chart – Audit Findings

ELEMENT 15: EMS PERFORMANCE REPORT
SP-15-1: Biosolids EMS Performance Report
SD-15-1: EMS Performance Report Schedule of Events

ELEMENT 16: INTERNAL EMS AUDIT PLAN
SP-16-1: Internal EMS Audit Plan

MANAGEMENT REVIEW

ELEMENT 17: MANAGEMENT REVIEW
SP-17-1: Management Review
SD-17-1: Management Review Schedule of Events

King County Wastewater Treatment Division
Environmental Management Systems Manual
Record of Revisions

Element #	Revision #	Revision Date	Nature of Revisions
1	E1ofEMSManualD7.doc	4/16/02	Final draft
	E1ofEMSManualD8.doc	9/15/02	See SF-12-2-2
	E1ofEMSManualD9.doc	6/22/03	See SF-12-2-3
	E1ofEMSManualD10.doc	3/9/04	See SF-12-2-5
	E1ofEMSManualD10.doc	4/26/04	See SF-12-2-6
	E1ofEMSManualD11.doc	10/6/04	See SF-12-2-7
2	E2ofEMSManualD8.doc	3/25/02	Final draft
	SF-2-1 policytrack.xls	4/8/02	Final draft
	E2ofEMSManualD10.doc	8/23/03	See SF-12-2-3
	E2ofEMSManualD11.doc	3/9/04	See SF-12-2-5
	E2ofEMSManualD12.doc	12/15/04	See SF-12-2-7
	E2ofEMSManualD13.doc	4/22/05	See SF-12-2-8
3	E3ofEMSManualD5.doc	3/27/02	Final draft
	E3ofEMSManualD6.doc	5/22/03	See SF-12-2-3
	E3ofEMSManualD7.doc	3/9/04	See SF-12-2-5
	E3ofEMSManualD7.doc	4/26/04	See SF-12-2-6
	E3ofEMSManualD8.doc	4/22/05	See SF-12-2-8
4	E4ofEMSManualD8.doc	3/27/02	Final draft
	Table4SD4-1-1.xls	4/15/02	Final draft
	Table4SD4-1-2.xls	10/23/02	See SF-12-2-2
	E4ofEMSManualD9.doc	5/22/03	See SF-12-2-3
	Table4SD4-1-3.xls	6/22/03	See SF-12-2-3
	E4ofEMSManualD11.doc	3/9/04	
	Table4SD4-1-5.xls	3/9/04	See SF-12-2-5
	E4ofEMSManualD12.doc	10/6/04	See SF-12-2-7
5	E5ofEMSManualD10.doc	3/27/02	Final draft
	E5ofEMSManualD11.doc	5/28/03	See SF-12-2-3
	E5ofEMSManualD12.doc	3/9/04	See SF-12-2-5
	E5ofEMSManualD12.doc	4/26/04	See SF-12-2-6
	Table SD-5-1	4/26/04	See SF-12-2-6
	Table SD-5-1	12/14/04	See SF-12-2-7
	E5ofEMSManualD13.doc	4/22/05	See SF-12-2-8
	SD-5-1	4/22/05	See SF-12-2-8
6	E6ofEMSManualD11.doc	4/8/02	Final draft
	SF6-1-1 PPtrackrecord.xls	4/8/02	Final draft
	E6ofEMSManualD12.doc	7/29/03	See SF-12-2-3

Note: See SF-12-2 for more details, under Management of Change.

King County Wastewater Treatment Division
Environmental Management Systems Manual
Record of Revisions

Element #	Revision #	Revision Date	Nature of Revisions
6	SF6-1-2 PPtrackrecord.xls	8/19/03	See SF-12-2-3
	E6ofEMSManualD13.doc	3/9/04	See SF-12-2-5
	SF6-1-3 PPtrackrecord.xls	3/9/04	See SF-12-2-5
	E6ofEMSManualD13.doc	4/26/04	See SF-12-2-6
	SF6-1-4 PPtrackrecord.xls	4/26/04	See SF-12-2-6
	E6ofEMSManualD13.doc	10/6/04	See SF-12-2-7
	SF6-1-5 PPtrackrecord.xls	12/14/04	See SF-12-2-7
	E6ofEMSManualD14.doc	4/22/05	See SF-12-2-8
7	E7ofEMSManualD8.doc	3/28/02	Final draft
	E7ofEMSManualD9.doc	9/10/02	See SF-12-2-2
	SD7-1-1 RREMS.xls	4/9/02	Final draft
	SD-7-1-2 RREMS.xls	9/5/02	See SF-12-2-2
	WTD2002_orgchart.vsd	11/29/01	Final draft
	E7ofEMSManualD10.doc	7/29/03	See SF-12-2-3
	SD-7-1-3 RRTable7A.xls	7/29/03	See SF-12-2-3
	E7ofEMSManualD11.doc	3/9/04	See SF-12-2-5
	SD-7-1-4RRTable7A.xls	3/9/04	See SF-12-2-5
	E7ofEMSManualD11.doc	4/26/04	See SF-12-2-6
	SD-7-1-4RRTable7A.xls	4/26/04	See SF-12-2-6
	E7ofEMSManualD11.doc	10/6/04	See SF-12-2-7
	E7ofEMSManualD11.doc	6/23/05	See SF-12-2-8
8	E8ofEMSManualD8.doc	4/11/02	Final draft
	SD8-1-1train EMS.xls	4/11/02	Final draft
	SD8-1-2train EMS.xls	9/4/02	See SF-12-2-2
	SD8-2-1train bios.xls	4/11/02	Final draft
	SD8-1-3train EMS.xls	7/2/03	See SF-12-2-3
	E8ofEMSManualD9.doc	3/9/04	See SF-12-2-5
	SD8-1-4train EMS.xls	3/9/04	See SF-12-2-5
	E8ofEMSManualD9.doc	3/9/04	See SF-12-2-5
	SD8-2-3train bios.xls	4/26/04	See SF-12-2-6
	SD8-1-4train EMS.xls	10/6/04	See SF-12-2-7
	E8ofEMSManualD9.doc	4/22/05	See SF-12-2-8
9	E9ofEMSManualD7.doc	3/27/02	Final draft
	E9ofEMSManualD8.doc	10/23/02	See SF-12-2-2
	SF9-3 inqurequlog.xls	4/3/02	Final draft
9	SF9-3-2 inqurequlog.xls	10/23/02	See SF-12-2-2

Note: See SF-12-2 for more details,
under Management of Change.

King County Wastewater Treatment Division
Environmental Management Systems Manual
Record of Revisions

Element #	Revision #	Revision Date	Nature of Revisions
	E9ofEMSManualD9.doc	5/28/03	See SF-12-2-3
	SF9-3-3 inqurequlog.xls	8/5/03	See SF-12-2-3
	E9ofEMSManualD10.doc	3/9/04	See SF-12-2-5
	SF9-3-4 inqurequlog.xls	3/9/04	See SF-12-2-5
	E9ofEMSManualD10.doc	4/26/04	See SF-12-2-6
	E9ofEMSManualD10.doc	10/6/04	See SF-12-2-7
	SF9-3-5 inqurequlog.xls	12/14/04	See SF-12-2-7
	SF9-3-6 inqurequlog.xls	3/31/05	See SF-12-2-8
	E9ofEMSManualD10.doc	4/22/05	See SF-12-2-8
10	E10ofEMSManualD7.doc	4/11/02	Final draft
	CCPOCP0402Ball.xls	4/8/02	Final draft
	CCPOCP0509all.xls	8/20/03	See SF-12-2-3
	E10ofEMSManualD8.doc	3/9/04	See SF-12-2-5
	CCPOCP0304all.xls	3/9/04	See SF-12-2-5
	E10ofEMSManualD8.doc	4/26/04	See SF-12-2-6
	E10ofEMSManualD9.doc	10/6/04	See SF-12-2-7
	E10ofEMSManualD9.doc	4/22/05	See SF-12-2-8
11	E11ofEMSManualD8.doc	4/11/02	Final draft
	E11ofEMSManualD9.doc	10/8/02	See SF-12-2-2
	E11ofEMSManualD10.doc	9/2/03	See SF-12-2-3
	SD11-1-1 emergdocs.xls	4/15/02	Final draft
	SD11-1-2 emergdocs.xls	10/8/02	See SF-12-2-2
	SD11-1-3 emergdocs.xls	9/2/03	See SF-12-2-3
	E11ofEMSManualD11.doc	3/9/04	See SF-12-2-5
	SD11-1-3 emergdocs.xls	3/9/04	See SF-12-2-5
	E11ofEMSManualD11.doc	4/22/05	See SF-12-2-8
12	E12ofEMSManualD6.doc	4/11/02	Final draft
	E12ofEMSManualD7.doc	10/2/02	See SF-12-2-2
	SF12-1 levl2schdlEMSproced.xls	4/3/02	Final draft
	SF12-1 levl2schdlEMSproced.xls	8/5/03	See SF-12-2-3
	SF12-2 Mngtchang.xls	4/11/02	Final draft
	SF12-2-2 Mngtchang.xls	10/24/02	See SF-12-2-2
	E12ofEMSManualD8.doc	7/31/03	See SF-12-2-3
	SF12-2-3 Mngtchang2.xls	9/2/03	See SF-12-2-3
12	SF12-2-4 Mngtchang.xls	12/15/03	See SF-12-2-4
	E12ofEMSManualD9.doc	3/9/04	See SF-12-2-5

Note: See SF-12-2 for more details,
under Management of Change.

King County Wastewater Treatment Division
Environmental Management Systems Manual
Record of Revisions

Element #	Revision #	Revision Date	Nature of Revisions
	SF12-1 levl2schdlEMSproced.xls	3/9/04	See SF-12-2-5
	SF12-2-5 Mngtchang.xls	3/15/04	See SF-12-2-5
	SF12-2-6 Mngtchang.xls	4/26/04	See SF-12-2-6
	SF12-2-7 Mngtchang.xls	12/16/04	See SF-12-2-7
	SF12-2-8 Mngtchang.xls	6/23/05	See SF-12-2-8
	E12ofEMSManualD10.doc	4/22/05	See SF-12-2-8
13	E13ofEMSManualD6.doc	4/11/02	Final draft
	CCPOCP0402Ball.xls	4/8/02	Final draft
	CCPOCP0509all.xls	8/20/03	See SF-12-2-3
	E13ofEMSManualD7.doc	5/28/03	See SF-12-2-3
	E13ofEMSManualD8.doc	3/9/04	See SF-12-2-5
	CCPOCP0304all.xls	3/9/04	See SF-12-2-5
	E13ofEMSManualD8.doc	4/26/04	See SF-12-2-6
	E13ofEMSManualD9.doc	10/6/04	See SF-12-2-7
	E13ofEMSManualD9.doc	4/22/05	See SF-12-2-8
14	E14ofEMSManualD7.doc	4/16/02	Final draft
	SF14-1&5 corrprevntactWO.xls	4/16/02	Final draft
	SF14-1-2 & 14-5-2	11/21/03	See SF-12-2-4
	SF14-2 corrctactplan.xls	4/16/02	Final draft
	SF14-3 Prevtactplan.xls	4/16/02	Final draft
	SF14-4-1 nonconfmctrack.xls	4/16/02	Final draft
	SF14-4-2 nonconfmctrack.xls	8/27/03	See SF-12-2-3
	SF14-4-3 nonconfmctrack.xls	12/15/03	See SF-12-2-4
	E14ofEMSManualD7.doc	7/31/03	See SF-12-2-3
	E14of EMSManualD8.doc	11/21/03	See SF-12-2-4
	SD14-1Flowchart corract.vsd	12/3/03	See SF-12-2-4
	E14of EMSManualD9.doc	3/9/04	See SF-12-2-5
	SF14-2 corrctactplan.xls	3/9/04	See SF-12-2-5
	SF14-3 Prevtactplan.xls	3/9/04	See SF-12-2-5
	SF14-4-4 nonconfmctrack.xls	3/9/04	See SF-12-2-5
	E14of EMSManualD9.doc	4/26/04	See SF-12-2-6
	SF14-4-5 nonconfmctrack.xls	4/26/04	See SF-12-2-6
	E14of EMSManualD10.doc	10/5/04	See SF-12-2-7

King County Wastewater Treatment Division
Environmental Management Systems Manual
Record of Revisions

Element #	Revision #	Revision Date	Nature of Revisions
14	SF14-1.xls	10/7/04	See SF-12-2-7
	SF14-2 corrctactplan.xls	10/11/04	See SF-12-2-7
	SF14-3 Prevtactplan.xls	10/5/04	See SF-12-2-7
	SF14-4-6 nonconfmctrack.xls	10/27/04	See SF-12-2-7
	SD-14-1-2	3/31/05	See SF-12-2-8
	SD-14-2-1	6/22/05	See SF-12-2-8
	SF14-4-6 nonconfmctrack.xls	12/28/04	See SF-12-2-8
	E14of EMSManualD10.doc	4/22/05	See SF-12-2-8
15	E15ofEMSManualD5.doc	4/16/02	Final draft
	E15ofEMSManualD6.doc	7/16/03	See SF-12-2-3
	E15ofEMSManualD7.doc	3/9/04	See SF-12-2-5
	E15ofEMSManualD8.doc	4/26/04	See SF-12-2-6
	E15ofEMSManualD9.doc	10/6/04	See SF-12-2-7
	E15ofEMSManualD9.doc	4/22/05	See SF-12-2-8
	SD-15-1-1	6/14/05	See SF-12-2-8
16	E16ofEMSManualD5.doc	4/16/02	Final draft
	E16ofEMSManualD5.doc	7/31/03	See SF-12-2-3
	E16ofEMSManualD7.doc	3/9/04	See SF-12-2-5
	E16ofEMSManualD8.doc	10/6/04	See SF-12-2-7
	E16ofEMSManualD8.doc	4/22/05	See SF-12-2-8
17	E17ofEMSManualD5.doc	4/16/02	Final draft
	E17ofEMSManualD6.doc	3/9/04	See SF-12-2-5
	E17ofEMSManualD7.doc	4/26/04	See SF-12-2-6
	E17ofEMSManualD8.doc	10/6/04	See SF-12-2-7
	E17ofEMSManualD8.doc	4/22/05	See SF-12-2-8
	SD-15-1-1	6/14/05	See SF-12-2-8

King County Wastewater Treatment Division
Environmental Management Systems Manual
Record of Revisions

Element #	Revision #	Revision Date	Nature of Revisions
Table of Contents	TOCEMSManualD3.doc	4/17/02	Final draft
	TOCEMSManualD4.doc	9/2/03	See SF-12-2-3
	TOCEMSManualD5.doc	12/15/03	See SF-12-2-4
	TOCEMSManualD6.doc	3/15/04	See SF-12-2-5
	TOCEMSManualD7.doc	4/26/04	See SF-12-2-6
	TOCEMSManualD8.doc	10/6/04	See SF-12-2-7
	TOCEMSManualD8.doc	6/23/05	See SF-12-2-8
List of References	Support Docs in Manual.xls	4/16/02	Final draft
	ListRefers2 in Manual.xls	7/29/03	See SF-12-2-3
	ListRefers3 in Manual.xls	3/15/04	See SF-12-2-5
	ListRefers4 in Manual.xls	4/26/04	See SF-12-2-6
	ListRefers5 in Manual.xls	12/15/04	See SF-12-2-7
	ListRefers6 in Manual.xls	6/23/05	See SF-12-2-8
Glossary	EMSmanual/glossarykeyterms2.doc	4/16/02	Final draft
	EMSmanual/glossarykeyterms2.doc	7/31/03	See SF-12-2-3
	EMSmanual/glossarykeyterms3.doc	11/18/03	See SF-12-2-4
	EMSmanual/glossarykeyterms4.doc	3/15/04	See SF-12-2-5
	EMSmanual/glossarykeyterms5.doc	12/15/04	See SF-12-2-7
	EMSmanual/glossarykeyterms5.doc	4/22/05	See SF-12-2-8

King County Wastewater Treatment Division
Environmental Management Systems Manual
List of References

Element Referenced in Other Element(s)	Included in EMS Manual (Yes or No)	EMS Document Number	Document Title (Taken from References listed in Procedures for each Element)
Element 1			
Element 2			
2, 3, 4, 9	Y		NBP Code of Good Practice
2	Y		WTD EMS Mission Statement
2, 3, 5, 9, 10	N		NBP National Manual of Good Practice for Biosolids (6/03)
2, 8, 9	N		NBP Biosolids EMS Guidance Manual (6/02)
all	N		King County Code, Title 3, Section 3.12.363 (WTD Productivity Initiative Pilot Plan)
all	N		King County Code, Title 28 Metropolitan Functions (Regional Wastewater Services Plan [RWSP] Operational Master Plan)
2, 5, 6, 12	Y	SP-2-1	Establishing and Updating Biosolids Policy
2	Y	SF-2-1	Policy Tracking
2	Y	Table 2	Cross-reference between King County Policies and NBP Code of Good Practice
all	Y		Glossary of Key Terms
Element 3			
3, 10, 12	Y	SP-3-1	Identifying and Updating Critical Control Points
3, 10	N		Washington Department of Ecology Biosolids Management Guidelines (BMGs)
3, 4, 7, 8, 10, 12, 13	Y	Table 3-A	Critical Control Points and Operational Controls for Biosolids Value Chain
3, 10	Y	Table 3-B	Consistency of CCPs, OCs and SOPs for Biosolids Value Chain to Manual of Good Practice
Element 4			
4, 10, 12	Y	SP-4-1	Identifying and Tracking Legal and Other Requirements
4, 8, 10	Y	SD-4-1	List of Legal Requirements
4, 15	Y	Table 4	Tracking for Biosolids Legal Requirements
4, 10	Y	Table 4A	Schedule of Biosolids Contracts (some of "Other" Requirements)
3, 4, 10, 13	Y	Table 4B	Checklist for WAC 173-308/40CFR 503 Regulatory Requirements
Element 5			
5, 12, 13	Y	SP-5-1	Establishing and Updating EMS Project Goals and Objectives
5, 13,	Y	SD-5-1	List of EMS Project Goals and Objectives
4, 5, 6, 13, 15	Y	Table 5	Action Plan for Element 5 Goals and Objectives
5	N		Wastewater Treatment Division (WTD) Work Plan
5	N		WTD Business Plan
5, 12, 15	Y	SP-5-2	Monitoring Progress Towards Goals and Objectives
5, 15, 17	N	SR-5-2	Goal & Objective Status Report
Element 6			
6	Y	Table 6	Action Plan for Public Participation in 3rd Party Audits
5, 6, 9, 12, 15	Y	SP-6-1	Public Participation in Planning
6	Y	SF-6-1	Public Participation Tracking Record
6, 17	N	SR-6-1	Public Participation Effectiveness Report
6	N		Case Study of KC, "Partnerships and Alliances: The Importance of Third-Party Support"
6	Y	Table 6A	Interested Parties List for EMS

King County Wastewater Treatment Division
Environmental Management Systems Manual
List of References

Element Referenced in Other Element(s)	Included in EMS Manual (Yes or No)	EMS Document Number	Document Title (Taken from References listed in Procedures for each Element)
Element 7			
7, 12	Y	SP-7-1	EMS Roles & Responsibilities
7, 8	Y	SD-7-1	Roles and Responsibilities for all EMS Elements
7	Y	SD-7-2	WTD Organizational Chart
7, 8, 11, 12	Y	SP-7-2	Roles and Responsibilities for Biosolids Activities
7	N		WTD job descriptions
7, 8, 11	N		Land Application Plans for projects
7, 8	N		Biosolids haul and application contracts
7	Y	Table 7	EMS Element Tracking
7	Y	Table 7A	EMS Roles & Responsibilities (by group)
Element 8			
7, 8	Y	SD-8-1	EMS Training Requirements
7, 8	Y	SD-8-2	Training Requirements for Biosolids Activities
8	N		WTD EMS Training Manual
8	N		Job Progression Training for WWTP's (training courses for WWTP personnel)
8	N		New Employee Training
8	N		Training Plans for Employees
8, 12	Y	SP-8-1	EMS Training
7, 8, 12	Y	SP-8-2	Training on Biosolids Activities
8, 16	N		NBP EMS Third Party Verification Auditor Guidance (Nov 2002)
Element 9			
9	Y	Table 9A	Action Plan for EMS Communications
6, 9	Y	Plan 9A	EMS Communications Plan for WTD's Biosolids Value Chain (text)
9	Y	Table 9B	Action Plan for Biosolids Communications
6, 9	Y	Plan 9B	Biosolids Communications Plan
6, 9, 15	Y	SP-9-1	EMS Communications Plan
9	N		WTD Communications Plan
9	N		Biosolids Information Packet/Press Kit
9	N		KC News Media Relations Guidelines
9, 12	Y	SP-9-2	Biosolids Communications Plan
9	Y	Table 9C	Biosolids Brochures, Publications and Resource Materials
9	Y	Table 9D	List of Current Biosolids Cross-sectional Teams
6, 9, 12	Y	SP-9-3	Responding to Inquiries, Requests and Comments
6, 9	Y	SF-9-3	Communications Log
9, 17	N	SR-9-1	EMS Communications Effectiveness Report
9, 17	N	SR-9-2	Biosolids Communication Effectiveness Report
9	Y	Form 9E	King County TARR Communications Record
3, 9	Y	Table 9E	Communication Flow Chart for Daily Influent Metals Monitoring
3, 9, 10	Y	Table 9F	Communication Flow Chart for Spills and Unusual Occurrences
3, 6, 9	Y	Table 9G	Communication Flow Chart for Monthly Biosolids Monitoring
3, 6, 9, 10	Y	Table 9H	Communication Flow Chart for Off-spec Loads
Element 10			

King County Wastewater Treatment Division
Environmental Management Systems Manual
List of References

Element Referenced in Other Element(s)	Included in EMS Manual (Yes or No)	EMS Document Number	Document Title (Taken from References listed in Procedures for each Element)
14	Y	SP-10-1	Identifying and Updating Operational Controls and the Associated SOPs
3, 10, 12, 13	Y	Table 10	Level 3 Master List of SOP Documents throughout the Biosolids Value Chain
Element 11			
11, 12	Y	SP-11-1	Emergency Preparedness and Response Plans
11	Y	SD-11-1	Description of Documents Covering Emergency and Preparedness Response Plans
11	N		Biosolids & Grit Haul Driver's Handbook
11	N		Emergency Response Plan for West Point and South Plant
11	N		WTD Overflow Manual
11	N		Industrial Waste Procedures Manual
11	N		Safety Manual for Biosolids Land Application Operations
11	N		Process Safety Management and Risk Management Program Manual for WPTP & STP.
11	N		WTD Employee Information System WTD database
Element 12			
12	Y	SP-12-1	Document Management
12, 15	Y	SP-12-2	Records Management
3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14	Y	SP-12-3	Management of Change
12	Y	SF-12-1	Level 2 Schedule for EMS Documents, Procedures and Records
12	Y	SF-12-2	Management of Change Record
Element 13			
3, 4, 10, 12, 13, 14, 15	Y	SP-13-1	Monitoring and Measurement
3, 4, 10, 12	Y	Table 13	Level 4 Master List of Logs, Reports and Records throughout the Biosolids Value Chain
Element 14			
12, 14	Y	SP-14-1	Non-Conformances for Day-to-Day Activities
14	Y	SF-14-1	Corrective Action Work Record
14, 15	Y	SF-14-2	Operations Findings Log for SF-14-1 (Corrective Action Record)
14	Y	SF-14-3	Tracking for Corrective/'Preventive Action Plans
14	Y	SF-14-4	Non-Conformance Tracking
12, 14, 15	Y	SP-14-2	Major or Minor Formal Audit Non-Conformances
14, 15	N		Third Party EMS Verification Audit findings
14	N		Maintenance Work Order
14	Y	SD-14-1	Corrective Action Flow Chart
14	Y	SD-14-2	Corrective Action Flow Chart - Audit Findings
Element 15			
15	Y	Table 15	Distribution List for EMS Manual
15	Y	Table 15A	Distribution List for Annual Biosolids EMS Performance Report
all	Y	SP-15-1	Biosolids EMS Performance Report
6, 9, 14, 15, 17	N	SR-15-1	Biosolids EMS Performance Report
15	Y	SD-15-1	EMS Performance Report Schedule of Events
Element 16			

King County Wastewater Treatment Division
Environmental Management Systems Manual
List of References

Element Referenced in Other Element(s)	Included in EMS Manual (Yes or No)	EMS Document Number	Document Title (Taken from References listed in Procedures for each Element)
12, 14, 15, 16	Y	SP-16-1	Internal EMS Audit Plan
16	N	Table 16	Internal EMS Audit Checklist
14, 16, 17	N	SR-16-1	Internal EMS Audit Report
Element 17			
5, 6, 9, 12, 13, 14, 15, 17	Y	SP-17-1	Management Review
17	N	SR-17-1	Biosolids EMS Management Briefing Document
17	N		All Elements and audit findings
17	Y	Table 17	Action Plan for Management Review Decisions
17	Y	SD-17-1	Management Review Schedule of Events

Audit Criteria – policies, practices, procedures, or requirements against which the auditor compares collected audit evidence about the subject matter. (Note: requirements may include but are not limited to standards, guidelines, specified organizational requirements, and legislative or regulatory requirements.)

Audit Findings – results of the evaluation of the collected audit evidence compared with the agreed audit criteria.

Biosolids – solid organic matter recovered from a wastewater treatment process and used especially as fertilizer – usually used in plural.

Biosolids Activities – a wide range of activities that impact the quality of wastewater solids and biosolids, including pretreatment activities, wastewater treatment processes, solids stabilization processes, conditioning and dewatering processes, transportation, storage, and beneficial use or disposal.

Biosolids Characteristics – goes beyond regulated biosolids quality standards to include all properties such as odors, metals, pathogens, organics, total solids, visible debris, etc.

Biosolids EMS Policy – statement by an organization committing it to the principles set forth in the NBP Code of Good Practice with respect to biosolids management and any other overall environmental goals voluntarily adopted by the organization. (See Element 2, WTD EMS policy statement and laminated business-size reference card.)

Biosolids EMS Goal(s) – environmental performance improvement goals that are consistent with an organization's biosolids policy to assure biosolids activities comply with applicable laws and regulations, meet quality and public acceptance requirements and prevent other unregulated adverse environmental and public health impacts by effectively managing all critical control points. EMS goals may include but are not limited to compliance with specific regulatory requirements, expanding beneficial use, improving biosolids quality, improving public acceptance and reducing or eliminating direct/indirect negative environmental impacts.

Biosolids EMS Objective(s) – a detailed environmental performance improvement requirement, quantified wherever possible, based on a biosolids EMS goal. One or more objectives must usually be met in order for the underlying goal to be achieved.

Biosolids EMS Performance – includes the biosolids activities/EMS performance with respect to compliance, budget conformance, actions on input from interested parties, progress toward goals and objectives, and the results of the third party EMS audit (see definition under Environmental Performance).

Biosolids Public Acceptance Requirements – biosolids physical, chemical, biological and aesthetic characteristics and management methods that must be met consistently and reliably in order to achieve public acceptance of the organization's selected biosolids management method(s).

Biosolids Quality Requirements – biosolids physical, chemical, biological and aesthetic characteristics that must be met consistently and reliably in order to apply the organization's selected biosolids management method(s).

Biosolids Value Chain – sequence of activities from wastewater pretreatment, discharge and collection through wastewater treatment, solids treatment and handling, storage, transportation, and final end use of biosolids that impact the quality and stability of biosolids and their suitability for the selected management method. (For King County Wastewater Treatment Division the biosolids value chain consists of Industrial Waste, South Plant and West Point treatment plants, Technology Assessment and Resource Recovery and Environmental Compliance.)

Code of Good Practice – is a broad framework of goals and commitments to guide the production, management, transportation, storage, and use of biosolids – in short, a comprehensive environmental management system (EMS) for biosolids. Those who embrace the Code and participate in the EMS commit to "do the right thing." Code subscribers and EMS participants pledge to uphold these 10 principles of conduct (see Element 2).

Complete and timely manner (for response to public request) – make initial response within 2-4 days to inquiries, public comments or requests for information. Further time may be needed in order to make a *complete and full* response in which case the requestor should be notified and kept apprised of the approximate completion date (could be anywhere from a few days to several weeks depending on the nature of the request).

Continual Improvement – EMS process for systematically improving the overall management of biosolids to achieve the organization's biosolids program goals and objectives set forth in the organization's biosolids policy and the National Biosolids Partnership Code of Good Practice.

Continual Improvement Action Plan – a work plan with work breakdown, schedule and milestones and assigned individuals and team for tracking progress toward goals, objectives and targets for continual improvement.

Contractors – are partners with King County in hauling, applying and composting our biosolids. They work closely with the TARR Team to have an overall understanding of EMS Manual and Support Documents and can relate applicable elements to their contractual tasks and duties.

Corrective Actions – specific actions and steps taken to correct day-to-day operations and/or an organization's nonconformance(s) to policies, procedures, and other legal, quality and public acceptance requirements, and to mitigate any resulting negative impacts on the environment.

Corrective Action Plan – a work plan with assigned individuals, work breakdown, schedule and completion milestones to identify the root causes of more complex non-conformances and design and implement the necessary corrective and preventive measures.

Critical Control Points (CCPs) – those locations, unit processes, events, and activities throughout the biosolids value chain under the organization's direct control or influence that require effective policies, programs, procedures, practices, monitoring and measurements to

assure that biosolids activities meet legal, quality and public acceptance requirements and do not have undesirable environmental impacts. Critical control points include all biosolids activities that are covered under applicable legal and other requirements.

DNRP Public Affairs – DNRP (Department of Natural Resources & Parks) staff who are responsible for reviewing and coordinating activities as described in Element 9: Communications Plan.

Emergency Preparedness – a structured emergency planning process to ensure that plausible emergency situations that can affect appropriate biosolids activities have been identified, response plans and procedures developed, and trained emergency response personnel and equipment are available and in a state of readiness.

Emergency Response – specific emergency plans and activities that are initiated to contain an emergency situation and bring it under control so as to minimize environmental impacts.

Emergency Preparedness and Response Team – reviews and coordinates activities as described in EMS Element 11: Emergency Preparedness & Response.

EMS Audit (Internal) – a systematic and documented verification process that objectively obtains and evaluates evidence to determine whether an agency's EMS for biosolids conforms with its biosolids management policy, goals, and objectives, the National Biosolids Partnership *Code of Good Practice*, and the 17 elements in the agency's EMS.

EMS Audit (Third Party Verification) – a systematic, structured audit of an agency's biosolids EMS performed by a qualified independent third-party auditor contracted by the National Biosolids Partnership. The third-party audit uses a standardized protocol to verify conformance with the requirements of the 17 EMS elements. If the third-party audit determines that the agency's EMS is in conformance with National Biosolids Partnership criteria, the agency receives recognition from the National Biosolids Partnership in the form of a "seal of approval."

EMS Audit Team – Environmental Compliance Staff, independent 3rd party contractor or WTD staff who are responsible to perform duties as described in EMS Element 14: Nonconformances and EMS Element 16: Internal EMS Audit Plan.

EMS Coordinator – appointed WTD staff person who has the responsibility for: leading the WTD EMS project team in developing and implementing King County's EMS for biosolids; keeping WTD management informed and seeking their approval as needed on EMS matters; training all staff working in the biosolids value chain on their EMS roles and responsibilities; and other duties as described in the procedures of the EMS Manual.

EMS Documents – various documents that collectively comprise the biosolids environmental management system documentation, including the biosolids policy, procedures, practices, operating instructions, and other supporting documents required by the environmental management system and applicable biosolids laws and regulations.

EMS Files – file cabinet in EMS Coordinator's office with additional EMS references, records, logs, original copies and other materials not found in the EMS Manual.

EMS Guidance Manual – a detailed manual with useful step by step guidance on how to implement the EMS Elements.

EMS Indicators – equate to the 4 outcomes (see definition of Outcomes) that will be examined as part of the organization's EMS to verify that the EMS is functioning as intended and producing desired outcomes.

EMS Manual – the compilation of the background, purpose, scope, references, R&R and procedure for each of the 17 EMS elements.

EMS Project Team – is composed of an appointed representative from each WTD section in the Biosolids Value Chain. They work under the lead direction of the EMS Coordinator to perform assigned duties to help design and implement an EMS for biosolids according to NBP guidelines and time frame. Each member is responsible to review certain EMS elements on a regular basis to report any changes that would necessitate updates to the EMS Manual (Table 7) or related Support Documents.

EMS Records – various records/reports of biosolids management activities required by the environmental management system and applicable biosolids laws and regulations, including but not limited to records/reports of monitoring, measurement, laboratory testing, inspections, operating logs, emergency response incident, outside party inquiries, public participation meetings, audits, corrective actions, management reviews and periodic performance reports. Records describe the results of specific biosolids management activities for a prescribed event, activity and/or period of time.

Environmental Impacts - see definition under *Potential Environmental Impacts.*

Environmental Management System for Biosolids (EMS) – an organized management system that meets the requirements of the *EMS Elements* for achieving the biosolids policy requirements and for developing, implementing, reviewing, and maintaining effective biosolids programs, procedures and practices. The EMS needs to manage all critical control points associated with biosolids activities where there is a potential to create significant undesirable environmental impacts.

Environmental Performance – one of the 4 auditable outcomes. Auditors shall examine the organization's progress toward identified priorities for improving performance, as reflected in the organization's established biosolids EMS goals and objectives (see definitions of Biosolids EMS Performance, Biosolids EMS Goals and Biosolids EMS Objectives) (for further info see latest version of "NBP Auditor Guidance").

Findings – see definition under *Audit Findings.*

Goals & Objectives – see definitions under *Biosolids EMS Goals* and *Biosolids EMS Objectives*.

Improvement – specific actions and steps taken to make a procedure or process better. Usually discovered in day-to-day operations and cross-sectional team interactions as opposed to audit findings (see Element 14, corrective actions and SF-14-1).

Interested Parties – individuals, groups or other public/private organizations interested in, involved with or otherwise affected by the organization's biosolids activities, including customers, farmers, regulators and other local/state governmental officials, community residents, the media, environmental and public interest groups, university professors and the general public.

King County Policy – Present King County policies, as well as biosolids policies are encompassed within several Council-approved ordinances that have become code (see Element 2).

Knowledge – to recognize, be familiar with, or understand information, activities, and actions based on experience or association; acquaintance with a science, art, or technique.

Legal Requirements – the federal, state and local laws and regulations that are applicable to King County's biosolids activities and are tracked by the Regulatory Team.

Maintenance Work Request – standard form used by staff at the treatment plants to document problems with a piece of equipment, procedure or process that requires corrective action.

Major Nonconformance – A nonconformance that occurs when one of the elements in the *EMS Elements* has not been addressed or has not been addressed adequately. Major nonconformances can occur when an organization has documented a process or procedure, but has not implemented it or cannot demonstrate effective implementation. A major nonconformance can also occur if a number of minor nonconformances in a given activity or against a given element point to a systemic failure. Major nonconformances also exist if an element is being disregarded during operations to the degree that it is having a noticeable effect on the organization's environmental compliance, environmental impacts, or the quality of the material being produced. A major nonconformance indicates a systemic failure.

Minor Nonconformance – A nonconformance that, when taken by itself, does not indicate a systemic problem with the EMS. It is typically a random or isolated incident. Minor nonconformances involve discrepancies within an element of the *EMS Elements* or the organization's environmental management system that do not significantly affect the implementation of the environmental management system and commitment to conform with the *Code of Good Practice*. A minor nonconformance does not indicate a systemic problem.

Measurement – a systematic method for estimating, testing, or otherwise evaluating key parameters and characteristics of an organization's biosolids activities to determine compliance with a specific standard, regulatory or other performance requirement, or to measure progress toward its biosolids program goals and objectives.

Monitoring – a systematic process of watching, checking, observing, inspecting, keeping track of, regulating or otherwise controlling key parameters and characteristics of an organization's biosolids activities to determine compliance with a specific standard, regulatory or other performance requirement, or to measure progress toward its biosolids program goals and objectives.

Monitoring and Measurement SOPs – include monitoring, testing, inspection and sampling activities performed to assure that requirements are being consistently met. They also including monitoring and measurement activities required by permits and regulations. SOPs reference other established programs such as Sewer Use Ordinances and Regulations and Laboratory Standard Procedures.

National Biosolids Partnership (NBP) – is composed of representatives from the US Environmental Protection Agency (EPA), Water and Environment Federation (WEF) and the Association of Metropolitan Sewerage Agencies (AMSA). The NBP was formed in 1997 to promote environmentally sound and publicly accepted biosolids management practices.

National Manual of Good Practice – a detailed set of documents that provides guidance on the identification of critical control points and the selection of appropriate management practices.

Nonconformance – a deviation in organization's established Biosolids Management Policy and Environmental Management System from the *Code of Good Practice* principles and/or the requirements of the *EMS Elements.* Nonconformances include circumstances that have the potential to create a noncompliance situation or significant environmental impact.

Noncompliance – a deviation from federal, state and local laws, regulations and other compliance requirements applicable to the organization's biosolids activities.

Objective Evidence –policies, ordinances, procedures, manuals, inspection checklists, operating logs, annual reports, various other documents, and various records – monitoring, inspection, enforcement, training, etc., that objectively document conformance with the *EMS Elements* requirements.

Operational Controls (OCs) – ordinances, regulations, standard operating procedures, practices, technology, instrumentation and process controls, monitoring and other criteria developed, implemented, and maintained by an organization to ensure effective management of all critical control points associated with its biosolids activities; including conformance with biosolids policy requirements; and achievement of biosolids program goals and objectives.

Organization – enterprise, authority, or institution, or part thereof, responsible for individual or a combination of, biosolids management activities.

"Other" Requirements – other binding biosolids practices and environmental requirements to which an organization voluntarily subscribes as part of its environmental management system. Examples include binding agreements with customers, suppliers, and public organizations and commitments to "beyond compliance" performance. These requirements are tracked by Section and/or Project Managers.

Outcomes – (a.k.a. Outcomes Matter) critical EMS indicators (see definition of EMS indicators) that need to be examined to verify that an agencies EMS is achieving the intended results. For the NBP program there are 4 areas that have defined, specific, auditable expectations to measure EMS health, including environmental performance; regulatory compliance; public

participation; and quality biosolids management practices (see more detailed definitions of these four areas in this glossary).

Policy – see definition under *Biosolids EMS Policy*, *King County Policy and WTD EMS Policy Statement.*

Potential Environmental Impacts – any possible change to the environment (positive or negative) including public health, public nuisance and odor problems, that wholly or partially result directly or indirectly from the organization's activities, products or services, including those activities associated with biosolids management, and those activities that alter (positively or negatively) the acceptable disposal/use method or create public nuisance and public health risks.

Preventive Actions – specific actions and steps taken to identify, analyze, and eliminate the root causes of noncompliance(s) and nonconformance(s) and to put in place permanent solutions that will prevent a recurrence.

Preventative Action Plan – a plan of specific steps or actions taken to identify, analyze and eliminate root causes of a more complex non-conformance.

Public (Interested Parties) – same as the definition of *Interested Parties*.

Public Education – systematic public communications program for educating interested parties and other stakeholders on its biosolids activities.

Public Participation – one of the 4 auditable outcomes. Auditors shall examine the organization's progress in meeting specific approach(es) and action(s) taken by an organization to involve interested parties and the general public in its biosolids program, including establishing improvement goals and objectives and two-way flows of information (see latest version of "NBP Auditor Guidance").

Quality Biosolids Management Practices - one of the 4 auditable outcomes. Auditors shall examine the organization's commitment to best biosolids practices, to the extent applicable and practicable (see latest version of "NBP Auditor Guidance").

R&R - abbreviation for roles and responsibilities.

Regulatory Compliance - one of the 4 auditable outcomes. Auditors shall examine the organization's progress in meeting legal requirements and its commitment to meeting and going beyond basic regulatory compliance obligations on an ongoing basis (see latest version of "NBP Auditor Guidance").

Regulatory Coordinators – Biosolids Regulatory Project Manager, NPDES Administrator, IW Program Officer and Local Governmental Affairs Officer who are responsible for reviewing and coordinating activities as described in EMS Element 4: Legal and Other Requirements.

Responsibility(ies) – the specific task(s) a group or individual carries out in a lead or supporting role that accomplish and/or support operational and strategic goals and objectives.

Role(s) – the purpose(s) of the activity(ies) a group or individual performs with respect to the biosolids value chain, biosolids activities and the biosolids EMS.

Root Causes – underlying cause or causes responsible for loss of operational control or non-conformance with standard procedures and practices established by the EMS to assure that biosolids are meeting all legal, quality, environmental protection and public acceptance requirements.

Service Agreement(s) – contractual or other legally binding agreements that define the roles and responsibilities of contractors and other groups in supporting the organization's EMS for biosolids.

SD - Standard Document, see Element 12.

SF - Standard Form, see Element 12.

Skills – the ability to use knowledge effectively and readily in execution or performance of tasks and activities; a developed aptitude or ability; the ability to do something competently.

SMART – criteria that goals and objectives should meet in order to be effective. S=specific, M=measurable, A=achievable, R=relevant, T=time bounded.

South Treatment Plant (STP) – One of the two major capacity wastewater treatment plants owned by King County, located in Renton, WA.

SP – Standard Procedure, see Element 12.

SR – Standard Report, see Element 12.

Standard Operating Procedures (SOPs) – include monitoring and sampling activities performed on location such as shift operating logs and sampling for process control/ compliance. Each SOP identifies the primary control parameters being monitored and set points to be maintained. Some SOPs are absolute while others are generic guidelines so there can be some deviation with experience, knowledge and skill.

Support Documentation – additional logs, action plans, lists and flow charts related to specific EMS elements which can be found in the back half of the EMS Manual.

TARR (Technology Assessment and Resource Recovery) – The group responsible for biosolids transportation, land application, research, public information, monitoring, recycling permits, market development and planning

TARR Communications Team – (Technology Assessment & Resource Recovery) staff who are responsible for reviewing and coordinating activities as described in EMS Element 6: Public Participation in Planning and Element 9:Communications Plan (for EMS and biosolids).

TARR Team – unit within Planning & Compliance section who are responsible for managing biosolids recycling and marketing. They work closely with the EMS Project Team to have an overall understanding of EMS elements and procedures. They have working knowledge of EMS

Manual and Support Documents and can relay this information to biosolids contractors and the public as required.

Timely and complete manner (for response to public request) – make initial response within 2-4 days to inquiries, public comments or requests for information. Further time may be needed in order to make a *complete and full* response in which case the requester should be notified and kept apprised of the approximate completion date (could be anywhere from a few days to several weeks depending on the nature of the request).

Training – teaching to make fit, qualified, or proficient; preparation for a test of skill or knowledge; instruction in disciplines and techniques.

Training and Development Project Team – oversees requirements and recordkeeping activities as described in EMS Element 8: EMS and Biosolids Training.

Wastewater Treatment Division (WTD) – the division within King County whose staff design, operate, maintain and manage all facets of the wastewater treatment plant process, as well as associated activities prior to and following treatment (i.e., industrial waste, collection system, biosolids reuse, etc.).

WEIS (WTD Employee Information System) – Database where WTD tracks employee training.

West Point Treatment Plant (WPTP) – One of the two major capacity wastewater treatment plants owned by King County, located at West Point in Seattle, WA.

Work Request or Work Order – see definition under *Maintenance Work Request*.

WTD Community Relations – WTD staff who are responsible for reviewing and coordinating activities as described in EMS Element 6: Public Participation in Planning and Element 9: Communications Plan.

WTD EMS Policy Statement – "*King County will produce, use and market biosolids products in ways that are publicly acceptable, cost effective, environmentally sound, and follow the national Code of Good Practice.*"

WTD Management – includes the WTD director, all WTD section managers/supervisors and unit supervisors within the Biosolids Value Chain who oversee involved WTD staff. They have oversight responsibilities, which include reviewing, revising, approving and implementing the recommendations for EMS policy, goals and objectives. They also have responsibility to approve the required biosolids capital and operating expenses and to periodically review progress toward long-term goals and short-term objectives for continual improvement.

WTD Staff – other biosolids-related staff within the Biosolids Value Chain, not included in previously identified EMS teams, but including Industrial Waste technical staff, Environmental Compliance staff involved in biosolids projects, treatment plant staff within Supervision, Operations, and Laboratory and Maintenance leads. They have limited working knowledge of a few EMS elements that relate directly to their job duties.

ELEMENT 1: EXECUTIVE SUMMARY

Organization of King County's Biosolids EMS Manual

King County Wastewater Treatment Division (WTD) has developed an Environmental Management System (EMS) for biosolids. The biosolids EMS will be used by the agency to document the biosolids program performance and management practices that go beyond legal requirements, ensure protection of public health and the environment, foster relationships with the community and report the monitoring and measurement results.

This EMS Manual for biosolids has been developed to implement a management system that meets the requirements and guidance of the National Biosolids Partnership (NBP) EMS program. It will enable us to systematically meet our biosolids legal, quality and public acceptance requirements for biosolids and assist our efforts to improve biosolids quality, resource productivity and competitiveness.

During the early years of implementing WTD's EMS there will be varying degrees of involvement and understanding by staff. As time goes by the involvement and understanding will become more consistent across the Biosolids Value Chain. Currently, starting with the most involvement and understanding we progress from EMS Coordinator, EMS Project Team, TARR Team, WTD Management to WTD staff. This progression goes from understanding the overall EMS structure and documentation to the components of the EMS that relate to our daily jobs and tasks.

Several documents have been developed to support the successful implementation of WTD's EMS. These documents will be revised and maintained to ensure continual improvement of the agency's biosolids program and the EMS. This EMS manual for biosolids activities has been reviewed and approved by the WTD Director and contains 17 elements described as follows:

- Element 1 contains an executive summary of how the manual has been organized and the background of WTD's biosolids activities throughout the biosolids value chain.
- Element 2 states our biosolids policy.
- Elements 3 through 6 include planning activities and identify critical control points, legal and other requirements, goals and objectives and the public's participation in planning our EMS.
- Elements 7 through 12 include EMS implementation activities and identify roles and responsibilities, training, communications, operational controls, emergency preparedness and response, documentation, document control and recordkeeping.
- Elements 13 through 16 include monitoring and measurement, nonconformance: preventive and corrective action, EMS performance report and an internal EMS audit.
- Element 17 identifies WTD management review of the biosolids EMS performance and our third party verification and interim audit results.

Summary of King County, Wastewater Treatment Division

Background

King County (KC) is a general-purpose government that provides regional services (roads, transit, law enforcement, parks, etc.) on a countywide basis and contracted services to cities within the County. Its government consists of a Council (legislative branch) and the Executive (elected executive officer). The Council adopts laws, sets policies and holds final approval over the budget. King County's Wastewater Treatment Division (WTD) is part of the Department of Natural Resources and Parks (DNRP). WTD provides wholesale wastewater transport, treatment, and reuse service to numerous cities and local sewer and water districts, collectively known as component agencies.

The County owns and operates the major sewer interceptors and pump stations that carry wastewater to its treatment plants. The component agencies individually own, operate, and maintain the pipelines and other conveyance facilities that carry wastewater to the County's interceptors.

As of October 2004 (see our King County WTD web site at **www.dnr.metrokc.gov/wtd** for more details and updated information), the WTD system serves more than 1.4 million residents within 420 square miles and includes most of the urbanized areas within King County (including almost all of the Seattle metro area) and part of southwest Snohomish County. It consists of over 330 miles of pipe, 42 pump stations and 19 regulator stations. The population within the service area, includes commercial and industrial employment. Although the region has a healthy industrial base dominated by aircraft manufacturing and computer technology, less than two percent of the average daily influent is industrial flow, reflecting the large residential makeup of the service area. The north-south orientation of surrounding hills, lakes, and Puget Sound necessitates large high-energy pump stations to convey flows to and from the treatment plants.

The wastewater treatment program operates two regional wastewater treatment plants (West Point (WP), South (SP)), one smaller treatment plant that is separate from the regional system (Vashon, however all solids are trucked to SP), and two combined sewer overflow treatment plants (Alki, Carkeek). These facilities, together with the major sewer interceptors and pump stations carry wastewater via more than 330 miles of underground transmission lines and tunnels, and form the backbone of the treatment system. The south service area was originally constructed with separated conveyance systems for sanitary sewage and stormwater. The west service area receives separated flows from north of Lake Washington and combined sewage from the City of Seattle. Wastewater at the regional plants receives primary treatment, secondary treatment, disinfection, and dechlorination before discharge to Puget Sound through deep, offshore outfalls.

WTD operates and maintains conveyance and treatment of wastewater 24 hours a day, 365 days per year. These complex systems require a highly trained, knowledgeable staff to ensure the most efficient operation and a high quality effluent and byproducts. Each treatment facility

operates under National Pollutant Discharge Elimination System (NPDES) permits and the Statewide General permit for Biosolids Management issued by the Washington State Department of Ecology.

The treatment plants have a design average wet weather capacity to process a total of 248 million gallons of wastewater per day. Both of our regional secondary treatment facilities were recipients of multiple American Metropolitan Sewerage Agency (AMSA) Gold and Silver awards, as well as the Platinum award at South Plant. AMSA presents these awards to member agencies that consistently meet all NPDES permit limits during a calendar year. The agency is an innovative wastewater agency that provides consistent, outstanding performance and has therefore been recognized as a national model. King County's efforts to preserve the region's water quality have received national recognition over the years. The program's high public acceptance was achieved several years ago and has been continually maintained. Program awards, normally recognized only once, include:

- United States Environmental Protection Agency (USEPA), 1996 National First Place Award for an Outstanding Project Involving and Enhancing Beneficial Use of Municipal Wastewater Biosolids to Biosolids Management Program (over 5mgd) King County, WA Dept. of Natural Resources, for Public/Private Partnership, Land Application, Composting

- USEPA, 1996 National First Place Award for an Outstanding Technology Development Contributing to Enhanced Beneficial Use of Municipal Wastewater Biosolids for New System for Forest Application of Dewatered Biosolids, King County, WA Dept. of Natural Resources for Cost Saving Highly-effective Equipment

- USEPA, 1996 National First Place Award for Outstanding Contributions and Leadership in the Beneficial Use of Biosolids to The Mountains to Sound Greenway Biosolids Forestry Program, King County Dept. of Natural Resources, Seattle, WA, a Partner

- AMSA 1996 Operations Award to King County Department of Natural Resources Mountains to Sound Greenway Biosolids Forestry Program

- National Association of Counties 1996 Achievement Award for Mountains to Sound Greenway Biosolids Forestry Program

- USEPA, 1994 Special National Award for Outstanding Contributions and Leadership in the Beneficial Use of Biosolids to King County Dept. Metropolitan Services as a Member of the Northwest Biosolids Management Association

- USEPA, 1988 First Place National Operating Project Award for an Outstanding Project Involving and Enhancing Beneficial Use of Municipal Wastewater Sludge to Municipality of Metropolitan Seattle, for Silviculture, Soil Improvement & Composting

- 1959 to 1989, American public Works Association. Designation for Project of Historical Significance, for cleanup of Lake Washington

- 1988, USEPA. Award for Outstanding Wastewater Treatment Facility, East Treatment Plant (currently called South plant - SP)

- 1987, American Consulting Engineers' Council. Award of Engineering Excellence, Renton Effluent Transfer System (currently called SP).

Wastewater Solids/Biosolids Processing

The major biosolids processing facilities at both regional treatment plants consist of gravity belt thickeners (GBT) and dissolved air flotation thickening (DAFT), solids holding tanks, anaerobic digestion and biosolids conditioning and dewatering with centrifuges. Current centrifuges produce a daily average of 73 dry tons of biosolids at an average of about 20% cake solids.

Biosolids Beneficial Use

The South and West Treatment Plants produce approximately 130,000 wet tons annually of Class B biosolids, all of which is recycled. An independent contractor, using King County trucks and trailers, transports the biosolids from each of the treatment plants for use in the major recycling programs.

Agriculture:
In eastern Washington, over 120 private dryland grain farms, hops farms, orchards, and managed rangeland recycled biosolids as a fertilizer and soil conditioner. WTD has made significant investments in the development of its partnerships with its haul and application contractors to assure it maintains a positive relationship with residents living in the vicinity of the sites, including periodic meetings with residents. Biosolids are delivered to storage areas at the end use site. The contractors load the biosolids into farm equipment and apply at agronomic rates, matching crop needs with the fertilizer value of biosolids. Several benefits have been observed, including the return of earthworms, increased productivity of formerly alkaline soils, more vigorous plant growth, improved moisture retention and subsequent reduction in irrigation requirements. The application contractors also recycle biosolids from other agencies at these agricultural sites, helping to satisfy the demand for this soil amendment.

- **Boulder Park Soil Improvement Project**
  Boulder Park, Inc., PO Box 285, Mansfield, WA 98830
  Operations Manager: (509) 683-1142

  This project encompasses more than 50,000 acres of dryland grain crops in North Central Washington, where biosolids have proven to be highly beneficial for crop yield enhancement and reducing soil erosion. The private application contract for this project began in 1991 and

includes more than 100 landowners and farmers interested in improving their soils and enhancing the economy of their rural environment.

- **Green Valley Soil Enhancement Project**
  Natural Selection Farms, Inc., 6800 Emerald Road, PO Box 893, Sunnyside, WA 98944
  Operations Manager: (509) 837-3501

  The permitted project site consists of approximately 38,000 acres, including 4,435 acres of irrigated land farmed primarily for hop production, but also includes orchards, corn and hay, and approximately 33,200 acres of dryland pasture/rangeland. The private application contract for this project began in 1991.

Forestry:

- **Mountains to Sound Greenway**:
  Mountains to Sound Greenway Trust, 1011 Western Ave, Suite 606, Seattle, WA 98104
  Executive Director: (206) 382-5565

  This project applies recycled biosolids to enhance forest growth by fertilization of private and public forests in eastern King County. The programs are the result of a collaborative agreement among KC, the Washington State Department of Natural Resources, the University of Washington College of Forest Resources, and the Hancock Company. This program also includes an environmental education program and the Compost Re-Greening project, which uses GroCo compost to eliminate logging roads and restore natural slopes and vegetation. A small amount of biosolids is also used annually in research and demonstration projects.

- **Application Operations**:
  RAMCO, Inc., 3415 Sunnyside Blvd., Marysville, WA 98270
  Owner/President: (425) 397-7265

  Since 1985 RAMCO has been applying biosolids to forests. The primary goals of the Forestry program are to preserve and enhance working forests in the I-90 corridor and to improve wildlife habitat and tree growth by recycling biosolids as a forest fertilizer. For most of the year biosolids are applied to portions of the 100,000 acre Snoqualmie Tree Farm. Typically about 1,250 acres are applied annually. Depending on site availability and access, an additional 300 acres are applied in the fall to state forest lands.

  International Forestry, Inc., 11232 -120th Ave. NE #201, Kirkland, WA 98033
  Owner: (425) 822-5915

  Since 1996, International Forestry and its predecessor company, Resource Mapping, has been supporting application operations by designing all application sites, including trail layout, buffer delineation and mapping.

WTD staff manages these beneficial use projects. This includes permitting of sites, public participation, reporting, monitoring and oversight. Accredited independent laboratories under private contracts are used to analyze the project environmental samples, including soil, ground water and surface water. Third party audits of monitoring data and our contractors land application operations are conducted periodically along with 503 compliance audits.

Composting:

- **GroCo Compost Project**
  GroCo, Inc., 15 South Spokane Street, Seattle, WA 98134
  Operations Manager: (206) 622-4321

  Since 1976, KC has contracted with a local private company to produce a compost consisting of one part biosolids to three parts sawdust. The processing, which includes static pile process, achieves Class A exceptional quality biosolids criteria. This Class A product is marketed in the greater Seattle area under the name GroCo. GroCo Inc. is responsible for permitting, monitoring, distributing, and marketing its product.

Biosolids Value Chain

The following WTD sections or work groups (see SD-7-2: WTD Organization Chart) are involved in the biosolids value chain that cover pretreatment through biosolids final end use:

- **WTD Director**
  201 South Jackson Street, MS KSC-NR-0501, Seattle, WA 98404
  WTD Director: (206) 684-1551

  The WTD Director has global responsibility for overall Wastewater Treatment Division operations and maintenance, as well as, planning and compliance, safety and training programs, finance, asset management, capital improvements and intergovernmental affairs.

  - **West Section and East Section - Treatment Plants: Operations and Maintenance**

    - **South Treatment Plant**, 1200 Monster Road, MS RTP-NR-0100, Renton, WA 98055. South Treatment Plant Manager: (206) 684-2408

    - **West Point Treatment Plant**, 1400 Utah Street W., MS WTP-NR-0100, Seattle, WA 98199. West Point Treatment Plant Manager: (206) 263-3825

      The South (SP) and West Point (WP) Treatment Plants manage liquid and solid treatment processes from the headworks through solids thickening, storage, biosolids dewatering and truck loading, as well as, maintenance of all treatment plant equipment and off site operations. Both treatment plants also have laboratories that

are accredited and conduct process control and regulatory sampling and analysis of biosolids.

- **Planning and Compliance Section**
  201 South Jackson Street, MS KSC-NR-0512, Seattle, WA 98404
  Section Manager: (206) 684-1164

  The Planning and Compliance section has responsibility for the industrial waste program, environmental compliance, community relations, comprehensive planning, technical resources, technology and resource development, biosolids management along with the associated administrative and financial functions.

  - **Industrial Waste (IW)**
    130 Nickerson Street, Suite 200, MS IHW-NR-0200, Seattle, WA 98109-1658
    IW Supervisor: (206) 263-3010

    IW administers local, state and federal pretreatment regulations as required by the County's NPDES permits. The program includes issuing waste discharge permits to significant industrial users (SIUs), issuing discharge authorizations to other industrial and commercial users, developing technically based local discharge limits, an enforcement response plan, technical assistance, and a "key manhole" program of collection system monitoring and investigations. Permitted facilities are monitored at least twice per year and inspected at least once per year. IW has over 140 SIUs under permit including 77 facilities operating in federal pretreatment categories. Additionally over 290 users are permitted under discharge authorizations.

  - **Environmental Compliance & Community Relations (ECCR)**
    201 South Jackson Street, MS KSC-NR-0510, Seattle, WA 98104
    ECCR Supervisor: (206) 684-1173

    ECCR has responsibility for environmental compliance, independent external audits, and WTD community relations/public outreach. They oversee and have input whenever the State Environmental Policy Act (SEPA) rules or the Endangered Species Act (ESA) are affected by a treatment plant or biosolids project. Over the last twelve years, the ECCR has developed the schedule and managed the contract for external consultants to audit the biosolids end use projects for adherence to federal and state biosolids regulations. Community relations personnel handle public involvement for wastewater projects, conduct treatment plant tours and participate in WTD response to emergencies and odor complaints.

- **Technology Assessment and Resource Recovery (TARR) - Biosolids Management**
  201 South Jackson Street, MS KSC-NR-0512, Seattle, WA 98104
  TARR Supervisor: (206) 684-1592

TARR manages the overall biosolids activities. The program includes managing the newly purchased truck fleet and the private truck transportation contract to deliver biosolids to our recycling sites. It also includes management of the contracts with private landowners for biosolids application and our compost contractor. Staff project managers perform all research and permitting requirements. A staff member within this section serves as the Agency's EMS coordinator. A Management Analyst oversees our program budget and purchases and processes all payments under our contracts.

ELEMENT 2: BIOSOLIDS POLICY

Background

King County Code establishes the guiding policies of the King County (KC) Wastewater Treatment Division (WTD) biosolids activities. These policies apply to all of WTD biosolids value chain activities and act as a benchmark for current and future biosolids activities. Establishing or changing KC policy is a complicated and lengthy process. It is only undertaken for major changes and/or special reasons, see the KC Internet site, under Title 1 at http://www.metrokc.gov/mkcc/Code/04-Title%201.pdf.

Our present biosolids policies are encompassed within several Council-approved ordinances that have become code, including Titles 3 http://www.metrokc.gov/mkcc/Code/06-Title%203.pdf and 28 http://www.metrokc.gov/mkcc/Code/38-Title%2028.pdf for WTD's *Productivity Initiative* and *Regional Wastewater Services Plan Operational Master Plan.* The original Comprehensive Water Pollution Abatement Plan was adopted in April 1959. It was revised by Ordinance 13680 and became King County Code in November 1999. KC Code contains all elements of the National Biosolids Partnership (NBP) Code of Good Practice (see Table 2, Support Documents).

WTD's commitment to the NBP's Code of Good Practice is reflected in our Biosolids EMS policy statement, which states that **"King County will produce, use and market biosolids products in ways that are publicly acceptable, cost effective, environmentally sound, and follow the national Code of Good Practice".**

The process for establishing and updating biosolids policy, can be found in SP-2-1.

EMS PROCEDURE SP-2-1: ESTABLISHING and UPDATING BIOSOLIDS POLICY

Purpose

To establish the guiding principles of WTD's biosolids activities.

Scope

These policies apply to all biosolids activities throughout the biosolids value chain.

Definitions: See Glossary of Key Terms

References:

- EMS Manual:
  - SF-2-1: Policy Tracking
  - NBP Code of Good Practice
  - King County Biosolids Policies

  - Policy memo from WTD Division Director
  - All other EMS elements

- Support documentation:
  - Table 2: Cross-reference Between King County Policies & NBP Code of Good Practice

- EMS files:
  - Applicable excerpts from King County Code, Title 1, Chapter 1.03 and Title 3, Section 3.12.363 (WTD Productivity Initiative Pilot Plan).
  - Applicable excerpts King County Code, Title 28 Metropolitan Functions (Regional Wastewater Services Plan [RWSP] Operational Master Plan).

- Other:
  - NBP Biosolids EMS Guidance Manual
  - NBP National Manual of Good Practice for Biosolids, June 2003
  - King County Internet site, www.metrokc.gov/mkcc/Code

Responsible Persons:

- EMS Coordinator
- EMS Project Team
- WTD Management

Procedure SP-2-1-3: (as it relates to WTD biosolids activities)

1. Once King County Code becomes effective the Executive delegates authority to appropriate WTD management level so WTD staff and resources can be committed to enforce County Code.

2. WTD Management regularly reviews and implements WTD policies to enforce the authority delegated to them.

3. If WTD Management recommends any changes to biosolids policies, they will notify the EMS Coordinator and appropriate WTD staff and proceed to appropriate step in procedure described on KC Intranet site (see Background section for this Element).

4. Following #3 above, the EMS Coordinator documents the changes on the Policy Tracking form, SF-2-1 and checks other EMS documents as necessary (thus initiating the Management of Change Procedure SP-12-3).

SF-2-1-2: Policy Tracking

Date	Policy title	Changes Made	Reason for Change	Responsible Staff	Approved By
12/14/2004	WTD Biosolids EMS policy statement	Adopted an official EMS policy statement to include NBP Code of Good Practice.	It is very difficult to change KC policy, so instead we adopted a Division policy statement to better comply with Element 2.	TARR Team, EMS Project Team	WTD Director

Code of Good Practice

The Code of Good Practice ("the Code") is a broad framework of goals and commitments to guide the production, management, transportation, storage, and use or disposal of biosolids -- in short, a comprehensive environmental management system (EMS) for biosolids. Those who embrace the Code and participate in the EMS commit to "do the right thing." Code subscribers and EMS participants pledge to uphold the following principles of conduct*:*

COMPLIANCE: To commit to compliance with all applicable federal, state, and local requirements regarding production at the wastewater treatment facility, and management, transportation, storage, and use or disposal of biosolids away from the facility.

PRODUCT: To provide biosolids that meet the applicable standards for their intended use or disposal.

ENVIRONMENTAL MANAGEMENT SYSTEM: To develop an environmental management system for biosolids that includes a method of independent third-party verification to ensure effective ongoing biosolids operations.

QUALITY MONITORING: To enhance the monitoring of biosolids production and management practices.

QUALITY PRACTICES: To require good housekeeping practices for biosolids production, processing, transport, and storage, and during final use or disposal operations.

CONTINGENCY AND EMERGENCY RESPONSE PLANS: To develop response plans for unanticipated events such as inclement weather, spills, and equipment malfunctions.

SUSTAINABLE MANAGEMENT PRACTICES AND OPERATIONS: To enhance the environment by committing to sustainable, environmentally acceptable biosolids management practices and operations through an environmental management system.

PREVENTIVE MAINTENANCE: To prepare and implement a plan for preventive maintenance for equipment used to manage biosolids and wastewater solids.

CONTINUAL IMPROVEMENT: To seek continual improvement in all aspects of biosolids management.

COMMUNICATION: To provide methods of effective communication with gatekeepers, stakeholders, and interested citizens regarding the key elements of each environmental management system, including information relative to system performance.

King County
Department of Natural Resources and Parks
Wastewater Treatment Division
201 South Jackson Street/MS KSC-NR-0500
Seattle, WA 98104-3855

March 24, 2005

TO: Wastewater Treatment Division staff

FM: Don Theiler, Division Manager, Wastewater Treatment Division

RE: Environmental Management System for Biosolids (EMS)

The EMS for Biosolids is maintained by a cross-sectional team with representatives from West Point, South Plant, Industrial Waste, Environmental Compliance and Technology Assessment and Resource Recovery. At our recent WTD Management Review we agreed to adopt an EMS Division policy statement for biosolids. By doing this KC is better able to fulfill the requirements of the EMS blueprint. The EMS policy statement is:

> ***"King County will produce, use and market biosolids products in ways that are publicly acceptable, cost-effective, environmentally sound, and follow the national Code of Good Practice."***

This new statement will be printed on the EMS pocket cards so everybody has a copy and can refer to it if asked about our EMS policy. These will be especially helpful during our audits which will be done annually to maintain our national EMS certification. The updated pocket cards will be distributed this spring during the next round of training for our audit.

King County is the third agency in the country to have an NBP-certified EMS for Biosolids. This project is sponsored by the National Biosolids Partnership (NBP) which is composed of representatives from EPA, AMSA and WEF. I trust you will give the EMS for biosolids your complete support and make it is a useful continual improvement tool for our agency.

ELEMENT 3: CRITICAL CONTROL POINTS

Background

King County Wastewater Treatment Division (WTD) has established a procedure for identifying and updating critical control points covering the entire biosolids value chain of activities, from pretreatment through final end use of biosolids. Critical control points could change in the future for a variety of reasons, including but not limited to new municipal/ industrial/ commercial dischargers, new legal/ regulatory/ permit requirements and modifications to biosolids treatment technology and end use alternatives. Procedure SP-3-1 covers the identification and updating of critical control points and associated potential environmental impacts.

The current list of critical control points is contained in support document, Table 3A. This document will be updated according to the Management of Change procedure SP-12-3, if and when critical control points are changed or added. Table 3-B has been prepared to clearly show that all of our critical control points and operational controls are consistent with the National Manual of Good Practice.

Critical control points have associated operational controls (Element 10) and monitoring and measurement standard operating procedures (SOPs) (Element 13) that prescribe the operating procedures, practices, monitoring, measurement, testing and /or inspection methods used to assure that biosolids and biosolids activities meet all legal (Element 4), quality, environmental protection and public acceptance requirements.

If critical control points are not managed successfully by the operational controls and monitoring and measurement SOPs they could create potential impacts to the environment. These potential environmental impacts have been identified for all critical control points and can be found in Table 3A. These are only identified as possible impacts to the environment, public health or the wastewater treatment process. The likelihood of these actually occurring is low. But if they do occur the operational controls and SOPs are in place to minimize and correct them.

EMS PROCEDURE SP 3-1: IDENTIFYING AND UPDATING CRITICAL CONTROL POINTS

Purpose

To identify and update the critical control points and associated potential environmental impacts for managing WTD's biosolids activities and meeting legal, quality, environmental protection and public acceptance goals.

Scope

The procedure covers all locations, unit processes, potential environmental impacts, activities and events that require management controls throughout the biosolids value chain, from pretreatment to final end use of biosolids.

Definitions: See Glossary of Key Terms

References:

- EMS Manual:
  - Element 2: Biosolids Policy
  - SP-4-1: Identifying and Tracking Legal Requirements
  - SP-10-1: Identifying and Updating Operational Controls and the Associated SOPs
  - SP-12-3: Management of Change Procedure
  - SP-13-1: Monitoring and Measurement
- Support documentation:
  - Table 3-A: Critical Control Points and Operational Controls for Biosolids Value Chain
  - Table 3-B: Consistency of Critical Control Points, Operational Controls and SOPs to the National Manual of Good Practice.
  - Table 10: Level 3 Mater List of SOP Documents throughout the Biosolids Value Chain.
  - Table 13: Level 4 Master List of Logs, Reports and Records throughout the Biosolids Value Chain.
- Other:
  - Washington Department of Ecology Biosolids Management Guidelines (BMGs)
  - NBP National Manual of Good Practice for Biosolids, June 2003.

Responsible Persons:

- EMS Coordinator
- EMS Project Team
- WTD Management

Procedure SP-3-1-3:

1. The EMS Coordinator will communicate to the Section Managers and/or their appointed designee, the need to review and update, if necessary, the list of critical control points and potential environmental impacts (Table 3A) identified throughout the biosolids value chain. This review shall be performed at least annually.

2. The Section Manager and/or their appointed designee, shall review the current list of critical control points under their jurisdiction and identify additions or deletions from the list along with associated changes to operational control SOPs (Element 10) and monitoring and measurement SOPs (Element 13).

3. Following review of the critical control points and potential environmental impacts, the Section Manager and/or their appointed designee, will propose changes.

4. The EMS Project Team shall review and compile the changes to the list. When needed, the project team will facilitate communication between business teams/work groups.

5. The EMS Coordinator shall initiate the Management of Change Procedure (SP-12-3) to consider and complete required updates to critical control points, environmental impacts, and other EMS documents, as required.

6. The Section Managers, and/or their appointed designees, shall modify the SOPs or O&M manuals based on these changes, if necessary. Implementation of the changes will begin after all affected staff and contractors are trained.

7. The EMS Coordinator shall notify the National Biosolids Partnership of any changes to the critical control points or environmental impacts prior to the next verification audit.

ELEMENT 4: LEGAL AND OTHER REQUIREMENTS

Background

King County Wastewater Treatment Division (WTD) has established a procedure for identifying and tracking legal requirements applicable to biosolids activities from pretreatment through final end use. Procedure SP-4-1 covers both the roles and responsibilities and the process used by WTD staff to track these requirements.

The current list of federal, state and local legal requirements applicable to WTD's biosolids activities are found in SD-4-1, with additional details in support documents, Table 4 and 4B. A conscious effort has been undertaken to limit legal requirements to only those that truly affect biosolids and are imposed upon us by outside agencies. Procedure SP-12-3 covers the management process for incorporating changes and new requirements necessary to keep WTD biosolids activities up-to-date.

"Other requirements" applicable to biosolids activities are listed in Table 4A, 3A, 10 and 13. These "other requirements" are self-imposed commitments that originate from our contracts and SOPs. These "other requirements" are typically tracked and monitored by Section Managers, Project Managers and/or their appointed designees. Procedure SP-3-1, SP-10-1 and SP-13-1 cover these items, so no additional procedure is necessary.

EMS PROCEDURE SP-4-1: IDENTIFYING AND TRACKING LEGAL REQUIREMENTS

Purpose

To summarize the systematic process used by WTD to identify, track and evaluate applicable legal requirements, and to review and comment on legislation and proposed rulemaking at the federal, state and local level.

Scope

The procedure covers the tracking of federal, state and local laws, regulations and permits with which WTD must comply. This applies to WTD biosolids activities at all critical control points throughout the biosolids value chain, including pretreatment, solids treatment, transportation and final end use.

Definitions: See Glossary of Key Terms

References:

- EMS Manual:
  - Element 2: Biosolids Policy
  - SP-3-1: Identifying and Updating Critical Control Points
  - SD-4-1: List of Legal Requirements
  - SP-10-1: Identifying and Updating Operational Controls and the Associated SOPs
  - SP-12-3: Management of Change Procedure
  - SP-13-1: Monitoring and Measurement
- Support documentation:
  - Table 3-A: Critical Control Points and Operational Controls for Biosolids Value Chain (some of our "Other" requirements)
  - Table 4: Tracking for Biosolids Legal Requirements
  - Table 4A: Schedule of Biosolids Contracts (some of our "Other" requirements)
  - Table 4B: Checklist for WAC 173-308/40 CFR 503 Regulatory Requirements
  - Table 5: Action Plan for Element 5 Goals and Objectives
  - Table 10: Level 3 Master List of SOP Documents throughout the Biosolids Value Chain
  - Table 13: Level 4 Master List of Logs, Reports and Records throughout the Biosolids Value Chain.

Responsible Persons:

- EMS Coordinator
- EMS Project Team
- WTD Management
- "Regulatory Coordinators"
  - Biosolids Regulatory Project Manager
  - NPDES Administrator
  - IW Program Officer
  - Local Governmental Affairs Officer

Procedure SP-4-1-2:

1. The Regulatory Coordinators is responsible, as appropriate, for identifying and tracking all federal, state and local requirements applicable to biosolids. Identifying and tracking mechanisms include routine review of the Federal register, participation in Northwest Biosolids Management Association, Water Environment Federation, Water Environment Research Foundation, Association of Metropolitan Sewerage Agencies and the Coalition for Clean Water. The Team will provide recommendations to WTD Management on biosolids legislative and rulemaking activities and submit public comment as appropriate.

2. The Biosolids Regulatory Project Manager shall maintain a documented standard communications procedure for keeping WTD Management, staff and contractors informed of proposed and adopted changes to legal requirements for biosolids.

3. The Regulatory Coordinators will inform the EMS Coordinator of changes in requirements that may necessitate updates in SD-4-1: List of Legal Requirements and other EMS documents as necessary (thus initiating the Management of Change Procedure SP-12-3).

4. The Regulatory Coordinators and/or EMS Coordinator shall also recommend to WTD Management any necessary training of staff and contractors, as required by new or modified legal requirements applicable to WTD's biosolids value chain or EMS activities.

SD-4-1-5: LIST OF LEGAL REQUIREMENTS

Requirement	Facility
Federal: 40 CFR Part 403 - General Pretreatment Regulations	Pretreatment Program
State: WAC 173-216 - State Waste Discharge Permit Program	
County: King County Code Title 28 - Water Pollution Abatement	
Federal: 40 CFR Parts 503, 501 & 123	West Point South Plant
State: NPDES Industrial General Stormwater Permit	South Plant
State: WAC 173-308 General Permit	West Point South Plant Vashon End use sites
State: National Pollutant Discharge Elimination System (NPDES)	West Point South Plant Vashon
Performance Audit for West Point Lab (WDOE)	West Point
Performance Audit for South Lab (WDOE)	South Plant
State: WAC 222 - Forest Practices Rules Department of Natural Resources	Forestry sites

Note: "Legal" requirements (see Glossary) are ones that will be tracked by the Regulatory Coordinators.

Abbreviations: CFR=Code of Federal Regulations WDOE=Washington Department of Ecology

References: EMS support documents Table 3A, 4, 7A-reg, 10 and 13.

ELEMENT 5: GOALS AND OBJECTIVES FOR CONTINUAL IMPROVEMENT

Background

King County Wastewater Treatment Division (WTD) has established a process for continually improving its biosolids activities. Continual improvement is accomplished by setting, implementing and periodically reviewing and updating goals and objectives. WTD is committed to 100% beneficial use of biosolids produced by its wastewater treatment plant processes. It is WTD's goal to produce the highest quality biosolids economically and practically achievable and to continue efforts to reduce pollutants in biosolids. WTD further wishes to accomplish beneficial use at the lowest practical cost, without sacrificing public acceptance and the management of issues important to interested parties (i.e., truck traffic and biosolids odor for residents living near our treatment plants and end use sites). We continually inquire and listen to our interested parties about ways to improve our operations and performance (Element 6, SP-6-1).

WTD always had and continues to have program goals and objectives for improving environmental performance of biosolids management activities based on critical control points, identified or potential environmental impacts, legal and other requirements, and applicable best management practices (see Table 5). Our achievements and accomplishments can best be described by examining our "Outcomes" in the four areas which are important indicators of EMS health (see "Outcomes Matter" list in red divider of EMS Manual or EMS files).

The process for establishing and updating the long-term Environmental Management System (EMS) project goals and the corresponding short-term objectives and targets can be found in procedure SP-5-1. These procedures shall be communicated to all affected staff and include activities to achieve and maintain compliance with legal requirements. The list of current goals and objectives is summarized in document SD-5-1 (and WTD work/business plans) with additional details in support document Table 5.

This element also covers monitoring and measurement of achieving desired EMS goals and objectives. Procedure SP-5-2 covers the process used to track progress toward EMS project goals, objectives and targets of continual improvement.

EMS PROCEDURE SP-5-1: ESTABLISHING AND UPDATING EMS PROJECT GOALS AND OBJECTIVES

Purpose

To describe the process used by WTD to establish, periodically review and update EMS project goals and objectives based on critical control points, identified or potential environmental impacts, legal and other requirements, and applicable best management practices.

Scope

The procedure covers all EMS project goals and objectives throughout the biosolids value chain.

Definitions: See Glossary of Key Terms

References:

- EMS Manual:
  - Element 2: Biosolids Policy
  - SP-6-1: Public Participation in Planning
  - Element 7: Roles and Responsibilities
  - SP-12-3: Management of Change Procedure
  - SP-15-1: EMS Performance Report
  - SP-17-1: Management Review
- Support documentation:
  - Outcomes Matter
  - Table 3A: Critical Control Points and Operational Controls for Biosolids Value Chain.
  - Table 3-B: Consistency of Critical Control Points, Operational Controls and SOPs to the National Manual of Good Practice.
  - Table 5: Action Plan for Element 5 Goals & Objectives
  - Table 7A: EMS Roles & Responsibilities (by group)
- Other:
  - WTD Work Plan
  - WTD Business Plan
  - NBP National Manual of Good Practice for Biosolids, June 2003.

Responsible Persons:

- EMS Coordinator
- EMS Project Team
- WTD Management

Procedure SP-5-1-3:

1. The EMS Coordinator and EMS Project Team shall present to the WTD Management Team and all affected WTD staff the proposed EMS project goals and objectives consistent with EMS and biosolids policies (Element 2). These goals and objectives will be established after:

    - soliciting input from affected staff.
    - verifying staffing (Element 7) and financial resources (WTD budget) necessary to implement the goals and objectives.
    - review/discussion by WTD Management at least annually.
    - or modified based on changing agency priorities and circumstances with review by WTD Management.

2. To accomplish the EMS project goals and objectives, the EMS Coordinator has formed an EMS Project Team with appropriate staff representatives from each section within the biosolids value chain. The EMS Project Team shall:

    - establish an action plan with interim milestones, targets, responsible persons and necessary resources to achieve each objective (Table 5).
    - provide information to WTD Management so they can prioritize the list of milestones and targets based on their relative importance to compliance, biosolids quality, environmental protection, public acceptance and the productivity initiative.
    - consider input from staff and interested parties (Element 6).

3. The EMS Coordinator and the EMS Project Team shall establish a procedure to track progress toward EMS goals and objectives. They will monitor progress, review and update goals and objectives at least annually (SP-5-2).

    - Progress shall be summarized in the Biosolids EMS Performance Report (SP-15-1) and be evaluated as part of the Management Review Process (SP-17-1).
    - After the goals & objective are updated, the EMS Project Team shall distribute the updated action plan (Table 5) to all affected parties to ensure that everybody is aware of their roles and responsibilities (Element 7).

4. The EMS Coordinator shall initiate the Management of Change Procedure (SP-12-3) to consider and complete required updates in the goals and objectives and other EMS documents, as required.

SD-5-1-4: LIST OF EMS PROJECT GOALS AND OBJECTIVES

GOAL #1 - Maintain 3rd Party certification of EMS in 2005.

Objective 1-1 – Fully implement EMS program and maintain certification in 2005.

Objective 1-2 – Follow NBP activities and prepare written comments/suggestions and send to NBP at least annually.

GOAL #2 - Evaluate WTD biosolids practices for opportunities to improve in 2005.

Objective 2-1 - Solicit and obtain updates and recommendations on EMS process throughout 2005.

Objective 2-2 - Coordinate with other WTD and DNRP programs in 2005 with focus on cost-savings and continual improvement (anti-backslide policy).

Objective 2-3 – Narrow down the Class A options to one for each treatment plant and prepare a retro-fit plan and budget for each.

Objective 2-4 – Study treatment plant process changes that may improve the final biosolids product in 2005.

Objective 2-5 – Improve annual reconciliation process so information can be assembled at least one week prior to due date of Feb 19th.

Objective 2-6 – Investigate reasonable options to produce site maps electronically for Boulder Park project.

GOAL #3 – Evaluate opportunities to improve biosolids quality in 2005.

Objective 3-1 – Identify biosolids characteristics for potential improvement in 2005 using baseline biosolids characteristics as established in 2002.

Objective 3-2 – Monitor biosolids quality in 2005, using baseline biosolids characteristics as established in 2002.

GOAL #4 – Continue public participation and communication activities in 2005/06.

Objective 4-1 – Complete 80% of action plan described in Table 6 by 12/05.

Objective 4-2 – Complete 80% of action plan described in Table 9A and 9B by 12/05.

EMS PROCEDURE SP-5-2: MONITORING PROGRESS TOWARDS GOALS AND OBJECTIVES

Purpose

To describe the process used to track progress toward EMS project goals and objectives for continual improvement.

Scope

This procedure monitors interim milestones and targets which are an integral part of meeting EMS goals & objectives as identified in SP-5-1 and Table 5. These activities leading toward continual improvement shall be reported in the EMS Performance Report (Element 15) and Periodic Management Review (Element 17).

Definitions: See Glossary of Key Terms

References:

- EMS Manual:
  - Element 2: Biosolids Policy
  - SP-5-1: Procedure for Establishing and Update Goals and Objectives
  - SD-5-1: List of Goals and Objectives for Continual Improvement
  - SP-15-1: EMS Performance Report
  - SP-17-1: Management Review
- Support documentation:
  - Table 5: Action Plan for Achieving Goals and Objectives
- EMS files:
  - SR-5-2: Goal & Objective Status Report

Responsible Persons:

- EMS Coordinator
- EMS Project Team
- WTD Management

Procedure SP-5-2-3:

1. An EMS Project Team member, and/or appointed designee, shall oversee and manage each EMS goal and objective for continual improvement. The Team shall review semi-annually and develop status reports (SR-5-2).

2. The EMS Coordinator will forward any problems or issues in meeting our goals and objectives to WTD management for their review and recommendations for resolution.

3. The EMS Coordinator shall compile the status reports for all EMS goals and objectives for inclusion in the Periodic Performance Report (Element 15) and Periodic Management Review (Element 17), both of which are performed annually.

4. The EMS Coordinator shall work with the appointed person to reassess their progress and take corrective action if the continual improvement objectives have fallen significantly behind their targets (as previously developed in Table 5).

ELEMENT 6: PUBLIC PARTICIPATION IN PLANNING

Background

King County Wastewater Treatment Division (WTD) has a systematic process for considering the views of interested parties in establishing and improving its biosolids and Environmental Management System (EMS) activities. WTD has a long history of being committed to public outreach and involvement in all aspects of our biosolids program while maintaining a two-way flow of information. We have taken this one step further by establishing the WTD Biosolids EMS Policy statement (Element 2) which commits us to the *Code of Good Practice*, including independent, 3rd party verification of our system.

WTD's Public Participation Plan (SP-6-1) summarizes the process for getting input and considering the views of interested parties in its EMS planning (closely linked to Element 9) and 3rd party verification process. Public participation activities are coordinated with other WTD proactive external communications and public education programs (Element 9) for informing interested parties (Table 6A) about our EMS and biosolids activities.

EMS PROCEDURE SP-6-1: PUBLIC PARTICIPATION IN PLANNING

Purpose

To describe WTD's overall approach and methods for obtaining input from interested parties on its biosolids EMS planning and 3rd party verification process.

Scope

The Public Participation Plan summarizes the strategies currently used to engage interested parties in the biosolids EMS. The plan is based on WTD's experience in involving the public in long range planning, as well as site specific project planning. The plan is closely linked to our Communications activities (Element 9).

Definitions: See Glossary of Key Terms

References:

- EMS Manual:
  - Element 2: Biosolids Policy
  - SF-6-1: Public Participation Tracking Record
  - Element 7: Roles and Responsibilities
  - SP-9-1: EMS Communications Plan
  - SF-9-3: Communications Log

  - SP-12-3: Management of Change Procedure
  - SP-15-1: EMS Performance Report
  - SP-17-1: Management Review
- Support documentation:
  - Table 5: Action Plan for Element 5 Goals & Objectives
  - Table 6: Action Plan for Public Participation in 3rd Party Audits
  - Table 7A: EMS Roles and Responsibilities
  - Plan 9A: EMS Communications Plan for WTD's Biosolids Value Chain
  - Plan 9B: Biosolids Communication Plan for WTD's Technology Assessment and Resource Recovery (TARR).
- EMS files:
  - Case Study of King County, "Partnerships and Alliances: The Importance of Third-Party Support"
  - SR-6-1: Public Participation Effectiveness Report
  - Table 6A: Interested Parties List for EMS

Responsible Persons:

- EMS Coordinator
- EMS Project Team
- WTD Management
- TARR Communications Team
- WTD Community Relations

History of Public Participation in Planning

WTD's biosolids planning dates to the early 1970's when biosolids were recognized as a resource and management policy shifted from disposal to recycling in land application projects. Decisions were driven by regulations as well as other factors, including existing facilities and technologies, costs, and public attitudes. Early projects focused on research and demonstration to assess benefits and feasibility of different uses. These projects included pioneering work in forestry with the University of Washington; soil reclamation in city parks; and agricultural studies with Washington State University. The next phase included soil reclamation of gravel pits and strip mines, enhancement of turf at the regional airport and amending soils used for landfill cover. These projects provided basic information about biosolids recycling methods as well as opportunities for public education and involvement.

Biosolids management plans went through a series of public reviews – initially, by the Metro Council, then King County Council; regional water quality committees, WTD component agencies, Metropolitan Water Pollution Abatement Advisory Committee (MWPAAC), etc.

Biosolids recycling was included in water quality public awareness campaigns which were comprised of newspaper articles, radio ads and public surveys. By the third year of surveys, public approval of biosolids recycling reached 67% for agriculture, 70% for composting and 75% for forestry. WTD staff also collaborated with other agencies and scientists in the Northwest Biosolids Management Association (NBMA) to identify cooperative opportunities for public education and involvement, such as holding a large public forum and inviting citizens and the media to participate in the annual conference.

King County's biosolids recycling/land application projects go through public review. Both the State Environmental Policy Act (SEPA) and State Rule for Biosolids Management require public notice, and this requirement was met by holding public meetings, publishing newspaper notices, distributing informational materials and meeting with local community leaders and elected officials. The process evolved through the years from 'public notice' to 'public involvement'. With each new project, the public involvement approach has been refined to address specific local needs. As projects were initiated in eastern Washington, the strategy of identifying local sponsors, local leaders and elected officials in planning and public outreach activities became approved policy (Case Study of King County).

CURRENT SITUATION

Today, the Biosolids program is very stable, with secure alliances and better public understanding. TARR has already implemented many public participation procedures and now is in a maintenance phase. We initiated the same principles covered in the *Code of Good Practice* long ago. After years of experience, WTD has concluded that the elements of success include: collaborative partnerships with the private sector; diversity of end-use sites; proactive community involvement; participation in professional biosolids associations; and networking at the national level.

Community support is essential to the success of any biosolids program. Not only do users and their neighbors need information, but the general public must understand the concept of biosolids reuse and begin to think of it as another form of recycling. In cooperation with communication specialists, third-party allies, and biosolids users, the program has used many techniques for spreading the word about biosolids recycling. Some examples of techniques that have been employed successfully are monthly newsletters, videos, posters/displays, open houses/tours, research and demonstration projects, magazine/radio ads and Web sites.

Procedure SP-6-1-2:

The Public Participation Plan involves ongoing public interactions with interested parties (based on historical and current issues at treatment plants and end use sites) in WTD's biosolids recycling activities (Link to Plan 9B). We also intend to use these existing forums to seek public input into our EMS planning (Link to Plan 9A) and 3rd party verification processes.

1. The TARR Communications Team shall create and update at least annually an Action Plan for Public Participation in 3rd Party Audits (Table 6).

2. The TARR Communications Team shall distribute the updated Action Plan to all affected parties to ensure that everybody is aware of their roles and responsibilities (Element 7).

3. The TARR Communications Team and/or WTD Community Relations shall create an interested parties list (Table 6A) and revise annually to ensure public participation in our biosolids activities and EMS planning and 3rd party verification processes (Linked to Table 6).

4. The TARR Communications Team and/or the WTD Community Relations shall utilize existing forums/meetings and create new opportunities to discuss our EMS program, distribute fact sheets/reports and solicit input/comments from attending publics. For example:

   a) Provide tours of the treatment plants, other county facilities, end use sites and GroCo

   b) Attend trade shows, conferences and other events to provide public education (i.e., Flower and Garden show, Northwest Biosolids Management Association conferences, Association of Metropolitan Sewerage Agencies and Water Environment Federation conferences, etc.)

   c) Hold annual project meetings, which may include open houses, at end use sites

   d) Meet with other public agencies utilizing WTD end use sites

   e) Distribute survey questionnaires to rate payers every year or two to gain feedback about treatment plant and biosolids issues

   f) Install information/interpretive signs at project sites

   g) Continue to participate in the Mountains to Sound Greenway Biosolids Education Program and the NBMA

h) Meet with existing citizen advisory groups, i.e., Industrial Waste Advisory Committee, Metropolitan Water Pollution Abatement Advisory Committee (MWPAAC), Mountains to Sound Greenway Trust, etc.

i) Maintain web sites where interested parties can obtain information on our biosolids recycling activities, EMS, current news and other related items.

5. The TARR Communications Team and/or the WTD Community Relations shall record and document all EMS public participation activities on form SF-6-1 (Public Participation Tracking Record) and retain record with EMS documents.

6. The TARR Communications Team and/or the EMS Project Team shall provide feedback loop to respond to comments received about the EMS and other biosolids activities (Element 9) and maintain inquiry log (SF-9-3).

7. The EMS Project Team shall use above mentioned forums/meetings to update the public on the current status of our EMS, KC's commitment to the *Code of Good Practice,* and their opportunity to review audit scope of work and/or participate in our 3rd party audits.

8. The EMS Coordinator shall review/evaluate this procedure annually to see if changes need to be made in EMS documents (thus initiating the Management of Change Procedure SP-12-3).

9. The TARR Communications Team shall create a Public Participation Effectiveness report (SR-6-1) to compile accomplishments and results of Public Participation Plan. These results will then be summarized in the Biosolids EMS Performance Report (SP-15-1) with recommendations for future changes to WTD Management (Element 17).

Over the next few years WTD will develop additional public outreach and participation methods. WTD is currently devising a public participation and communication plan to site a third treatment plant (Brightwater). This process will allow us to include information/discussions on biosolids recycling and requests for public participation on development/review of our biosolids EMS.

SF-6-1 : Public Participation Tracking Record (see EMS files)

Public Participation Activity	Purpose	Attendees	Date

ELEMENT 7: ROLES AND RESPONSIBILITIES

Background

King County Wastewater Treatment Division (WTD) has defined the roles and responsibilities for biosolids activities, as well as all elements related to the EMS. Biosolids roles and responsibilities cover all staff assigned to manage activities at all critical control points, from pretreatment to final end use, including contractors. The EMS roles and responsibilities are defined for each element in SD-7-1.

EMS PROCEDURE SP-7-1: EMS ROLES AND RESPONSIBILITIES

Purpose

To define the EMS roles and responsibilities for all 17 elements throughout the biosolids value chain, including contractors. Clear roles and responsibilities insure that all participants understand their responsibilities and those of others as well as having the resources and authority to carry them out.

Scope

The assignment of roles and responsibilities covers all functions related to the 17 EMS elements.

Definitions: See Glossary of Key Terms

References:

- EMS Manual:
  - Element 2: Biosolids Policy
  - All EMS elements
  - SD-7-1: Roles and Responsibilities for all EMS Elements
  - SD-8-1: EMS Training Requirements
  - SP-12-3: Management of Change Procedure
- Support documentation:
  - Table 3-A: Critical Control Points and Operational Controls for Biosolids Value Chain
  - Table 7A: EMS Roles and Responsibilities (by group)

Responsible Persons:
- EMS Coordinator
- EMS Project Team
- WTD Management

Procedure SP-7-1-2:

1. The EMS Project Team, in conjunction with WTD Management, shall review, revise and communicate, as necessary, the roles and responsibilities in the management and implementation of the EMS (SD-7-1).

2. The EMS Project Team, in conjunction with WTD Management and appropriate Financial Analyst(s), shall ensure human, technical and financial resources are available to continue the successful implementation of the EMS.

3. The EMS Coordinator shall communicate any changes to appropriate WTD Supervisors and staff that support biosolids activities and incorporate the changes into the EMS (thus initiating the Management of Change Procedure SP-12-3).

4. TARR Project Managers shall notify the EMS Coordinator of revisions to the roles and responsibilities of the biosolids contractors as defined in amendments to their contracts.

5. The WTD Management member responsible for the EMS shall review and revise the roles and responsibilities for the EMS Coordinator.

EMS Roles and Responsibilities

EMS roles and responsibilities are cross-functional, cutting across many different sections within WTD. Nonetheless, there are core responsibilities assigned to specific functional groups and individuals. The section responsible for the EMS is the Technology Assessment & Resource Recovery (TARR, formerly known as Biosolids Management Program - BMP) since it has primary responsibility for managing the transportation, recycling and marketing of King County's biosolids. The EMS Coordinator is from this section. Additional descriptions of respective EMS roles and responsibilities are as follows:

- **EMS Coordinator** is appointed WTD staff person who has the responsibility of: leading the WTD EMS project team in developing and implementing King County's EMS for biosolids; keeping WTD management informed and seeking their approval as needed on EMS matters; training all staff working in the biosolids value chain on their EMS roles and responsibilities; and other duties as described in the procedures of the EMS Manual.

- **EMS Project Team** is composed of an appointed representative from each WTD section in the biosolids value chain. It works under the lead direction of the EMS Coordinator to

perform assigned duties to help design and implement an EMS for biosolids according to NBP guidelines and time frame. Each member is responsible to review certain EMS elements on a regular basis to report any changes that would necessitate updates to the EMS Manual and notify the EMS Coordinator at the regularly scheduled EMS meeting.

- **WTD Management** (including WTD director, all WTD section managers/supervisors and unit supervisors who oversee involved WTD staff) has oversight responsibilities, which include reviewing, revising, approving and implementing the recommendations for EMS policy, goals and objectives. They also have responsibility to approve the required biosolids capital and operating budgets and to periodically review progress toward long-term goals and short-term objectives for continual improvement.

- **TARR Supervisor** oversees the biosolids recycling program and its staff, ensuring that biosolids are managed according to King County and EMS policies and procedures. The program manager oversees the development of long-term plans for biosolids management, recommending changes in technology, policy or goals and objectives. The program manager develops budgets and authorizes expenses for biosolids capital and operating projects.

- **TARR Team** is ultimately responsible for biosolids recycling and marketing. The TARR or BMP Project Managers are in this Team and they in turn oversee the recycling and haul Contractors. The TARR Team works closely with the EMS Project Team to have an overall understanding of EMS elements and procedures. They have working knowledge of EMS Manual and Support Documents and can relay this information to biosolids contractors and the public as required.

- **Contractors** are partners with King County in hauling, applying and composting our biosolids. They work closely with the TARR Team to have an overall understanding of EMS Manual and Support Documents and can relate applicable elements to their contractual tasks and duties.

- **WTD staff** include other biosolids-related staff within the Biosolids Value Chain, not included in previously identified EMS teams, but including Industrial Waste technical staff, Environmental Compliance staff involved in biosolids projects, treatment plant staff within Supervision, Operations, and Laboratory and Maintenance leads. They have limited working knowledge of a few EMS elements that relate directly to their job duties.

- **Regulatory Coordinators** review and coordinate activities as described in EMS Element 4: Legal and Other Requirements.

- **TARR Communications Team** reviews and coordinates activities as described in EMS Element 6: Public Participation in Planning and Element 9: Communications Plan (for EMS and biosolids).

- **WTD Community Relations and/or DNRP Public Affairs** review and coordinate activities as described in EMS Element 6: Public Participation in Planning and Element 9: Communications Plan.

- **EMS Audit Team** performs duties as described in EMS Element 14: Nonconformances and EMS Element 16: Internal EMS Audit Plan.

- **Training and Development Project Team** oversees requirements and recordkeeping activities as described in EMS Element 8: EMS and Biosolids Training.

- **Emergency Preparedness and Response Team** reviews and coordinates activities as described in EMS Element 11: Emergency Preparedness & Response.

SD-7-1-4: EMS Roles and Responsibilities

EMS Element	Responsible Person(s)	EMS Responsibilities/Duties
1 - Documentation of Environmental Management	EMS Project Team, EMS Coordinator	Review, update and revise at least semi-annually. Compile changes & update related docs.
	WTD Management	Review and approve revisions to EMS manual.
2 - Biosolids EMS Policy	WTD Management	Recommend, review and approve policy as applicable. Ensure staff trained.
	EMS Coordinator	Maintain associated updates to all EMS documents, as required as result of policy changes.
	WTD staff and other teams	Be aware of applicable KC and biosolids policies that relate to job duties.
3 - Critical Control Points	EMS Project Team, TARR Team, contractors.	Establish and update CCPs, semi-annually, as necessary.
	WTD Management	Review CCPs and identify additions or deletions. Ensure staff trained.
	EMS Coordinator	Initiate review of CCPs at least annually. Compile changes & update related CCP docs as needed.
	WTD staff	Understand applicable CCPs as they apply to job duties related to biosolids.
4 - Legal and Other Requirements	Regulatory Coordinators	Track all applicable regulations, notify staff and contractors of any changes or new requirements, recommend related training to management.
	EMS Coordinator	Maintain associated updates to all EMS documents as result of regulatory changes.
	WTD Management	Review requirements and any revisions. Approve necessary resources. Ultimately responsible for compliance.
	TARR Team, contractors	Understand and comply with applicable legal requirements.
5 - Goals & Objectives	EMS Project Team, EMS Coordinator	Develop EMS goals & objectives for continual improvement along with action plan and implement. Solicit input from staff and interested parties. Track progress semi-annually.
	EMS Coordinator	Compile changes & update EMS goals & objectives along with action plan as needed.
	WTD Management	Review and discuss G&O, all revisions and progress. Approve necessary resources.
	TARR Team, WTD staff, contractors	Review & comment on action plan for G&O. Assist in meeting agreed upon milestones/targets.

SD-7-1-4: EMS Roles and Responsibilities

EMS Element	Responsible Person(s)	EMS Responsibilities/Duties
6 - Public Participation in Planning	TARR Communications Team	Develop EMS public participation plan along with action plan and implement.
	WTD Community Relations	Assist with implementation of EMS public participation plan as necessary.
	EMS Coordinator	Maintain interested parties list. Compile changes & update related public participation docs as needed.
	EMS Project Team	Review plans annually, track activities, respond to comments, questions and requests.
	WTD Management	Review plans and any revisions. Advise and recommend as necessary.
7 - Roles & Responsibilities	EMS Project Team, TARR Team	Identify and update EMS and biosolids roles & responsibilities semi-annually, as required.
	Contractors	Understand and perform R&R as relate to job duties.
	EMS Coordinator	Compile changes & update EMS and biosolids roles and responsibilities as required.
	WTD Management	Review, revise and communicate R&R. Ensure staff trained and resources available.
8 - Training	EMS Project Team, TARR Team, contractors.	Ensure appropriate EMS and biosolids training is completed and documented.
	Training and Development Team	Develop training plan, recommend attendees and curriculum, maintain records.
	EMS Coordinator	Organize EMS Training & Development Teams to accomplish training plans. Compile changes & update related EMS and biosolids training docs as required.
	WTD Management	Review training plans and budgets. Provide necessary resources. Ultimately responsible for training.
9 - Communications Plan	TARR Communications Team	Develop EMS and biosolids communication plans along with action plan and implement.
	WTD Community Relations & DNRP Public Affairs.	Assist with implementation of Communication plans as necessary. Assist with inquiries, request and comments as required.
	EMS Project Team, TARR Team, contractors.	Review plans, track progress semi-annually. Maintain inquiry log and communication records.
	EMS Coordinator	Compile changes & update related communications docs as needed.
	WTD Management	Review plans and identify additions and deletions. Advise and recommend as necessary.

SD-7-1-4: EMS Roles and Responsibilities

EMS Element	Responsible Person(s)	EMS Responsibilities/Duties
10 - Operational Controls	EMS Project Team, TARR Team, contractors.	Establish and update OCs related to all CCPs (3), semi-annually, as required.
	WTD Management	Review OCs and identify additions and deletions. Ensure staff trained.
	EMS Coordinator	Compile changes, update related docs as needed.
	WTD staff	Understand applicable OCs as they apply to job duties related to biosolids.
11 - Emergency Preparedness & Response	EMS Project Team, TARR Team, contractors.	Ensure emergency preparedness and response procedures are updated, documented and all in compliance.
	Emergency Preparedness and Response Team	Review, revise and test procedures, recommend attendees and curriculum for training.
	EMS Coordinator	Compile changes & update related emergencies docs as needed. Check that emergency training is being provided
	WTD Management	Review plans and any revisions. Ensure staff trained. Approve necessary resources.
12 - Documentation and Document Control	EMS Project Team, TARR Team, contractors.	Establish and maintain document control (Table 10) and records management (Table 13). Update semi-annually, as required.
	EMS Coordinator	Maintain document control (Table 10) and records management (Table 13) and perform Management of Change as required.
	WTD Management	Review document control system. Provide necessary resources.
13 - Monitoring & Measurement	EMS Project Team, TARR Team, contractors.	Establish and update monitoring and measurement SOPs related to all OCs (10), semi-annually, as required.
	WTD staff	Understand applicable SOPs as they apply to job duties related to biosolids.
	EMS Coordinator	Initiate review of OCs at least annually. Compile changes & update related OC docs as needed.
	WTD Management	Review M&M and identify additions and deletions. Ensure staff trained.

SD-7-1-4: EMS Roles and Responsibilities

EMS Element	Responsible Person(s)	EMS Responsibilities/Duties
14 - Non-Conformances: Corrective & Preventive Actions	EMS Project Team, TARR Team, contractors.	Monitor and track minor non-conformances in daily operations, identify cause and institute corrective action plan.
	EMS Audit Team	Monitor and track major non-conformances from audit findings, identify cause, propose corrective action alternatives and prepare report. Evaluate effectiveness of all corrective action plans and make recommendations.
	EMS Coordinator	Maintain non-conformance records and compile changes & update related docs as needed. Ensure Corrective/Preventative action plans are prepared and summarized in annual management review (El 17) and performance report (El 15).
	WTD Management	Review audit findings, approve corrective/ preventive action plans and review progress.
15 - EMS Performance Report	EMS Project Team	Establish format, content and distribution of annual report.
	EMS Coordinator	Solicit information, draft report and circulate for review, finalize report.
	WTD Management	Review performance report.
16 - Internal EMS Audit	EMS Project Team, TARR Team, contractors.	Prepare for internal audit. Develop corrective action plan for nonconformances. Participate in audits.
	EMS Audit Team	Design and annually conduct internal audit based on auditor guidance. Prepare audit report.
	EMS Coordinator	Participate in audits. Present audit results to management in annual management review (El 17).
	WTD staff	Participate in EMS audits.
	WTD Management	Review audit findings. Participate in audits.
17 - Management Review	EMS Coordinator	Schedule and conduct annual management review of EMS project. Prepare final briefing document.
	EMS Project Team	Assist with preparing briefing document and circulate for comment.
	WTD Management	Review, discuss and make recommendations for future direction.

EMS PROCEDURE SP-7-2: ROLES AND RESPONSIBILITIES FOR BIOSOLIDS ACTIVITIES

Purpose

To define the organizational roles and responsibilities for biosolids activities throughout the biosolids value chain, including contractors. Clear roles and responsibilities insure that all participants understand their responsibilities and those of others, as well as having the resources and authority to carry them out.

Scope

The assignment of roles and responsibilities covers all biosolids activities related to the critical control points and operational controls throughout the biosolids value chain.

Definitions: See Glossary of Key Terms

References:

- EMS Manual:
  - Element 2: Biosolids Policy
  - All EMS elements
  - SD-7-2: WTD Organizational Chart
  - SD-8-2: Training Requirements for Biosolids Activities
  - SP-12-3: Management of Change Procedure
- Support documentation:
  - Table 3-A: Critical Control Points and Operational Controls for Biosolids Value Chain
  - Table 10: Level 3 Mater List of SOP Documents throughout the Biosolids Value Chain.
- Other:
  - WTD job descriptions (found electronically in Outlook Public Folders/DNRP/WTD/HR)
  - Land Application Plans for Boulder Park, Green Valley, Weyerhaeuser and Mountains to Sound projects.
  - Biosolids haul and application contracts.

Responsible Persons:

- WTD Management
- Section Managers
- EMS Coordinator

Procedure SP-7-2-3:

1. WTD Management shall review, revise and communicate the roles and responsibilities in the management and implementation of daily biosolids activities throughout the biosolids value chain.

2. Section Managers and/or supervisors, along with the appropriate Financial Analyst(s) and others, shall ensure human, technical and financial resources are available to continue the successful implementation of those biosolids roles and responsibilities and prepare recommendations to WTD Management.

3. Section Managers and/or supervisors shall incorporate the changes into their daily work loads and organization charts (SD-7-2), as necessary.

4. TARR Project Managers shall notify the EMS Coordinator of revisions to the roles and responsibilities of the biosolids contractors as defined in amendments to their contracts.

5. WTD Management and/or Section Managers shall inform the EMS Coordinator of changes in biosolids roles and responsibilities that may necessitate updates in EMS documents (thus initiating the Management of Change Procedure SP-12-3).

Biosolids Activities Roles and Responsibilities

The roles and responsibilities for WTD biosolids activities are summarized in the descriptions and organization chart below. Additional descriptions of biosolids roles and responsibilities are covered in individual job descriptions and contracts.

- **WTD Management** (including WTD director, all WTD section managers/supervisors and unit supervisors who oversee involved WTD staff) has oversight responsibilities, which include reviewing and approving the recommendations for biosolids policy, goals and objectives and business plans. They also have responsibility to approve the required biosolids capital and operating budgets and to periodically review progress toward long-term goals and short-term objectives for continual improvement.

- **WTD Director's Office** is responsible for overall WTD operations including WTD safety and safety training programs, intergovernmental affairs, special projects and administrative support.

- **WTD staff** include other biosolids-related staff within the Biosolids Value Chain, not included in previously identified EMS teams, but including Industrial Waste technical staff, Environmental Compliance staff involved in biosolids projects, treatment plant staff within

Supervision, Operations, and Laboratory and Maintenance leads. They are limited working knowledge of a few EMS elements that relate directly to their job duties.

- **Operations & Maintenance** (East and West Section) has core responsibility for the maintenance of the collection/interceptor/transmission system and for the operation and maintenance of all unit processes/critical control points within the wastewater treatment plants (WWTPs), from the headworks through conditioning and dewatering, storage and loading of the biosolids into King County trucks for transport to the recycling sites. WWTP operators also collect all the various biosolids-related samples at critical control points within the WWTPs for both compliance and operational control. WWTP operators have primary responsibility for the SOPs for operational control and monitoring and measurement for WWTP unit processes. Maintenance personnel maintain all preventive maintenance schedules for all WWTP equipment and unit processes. Both also maintain operational control records for automated process control/SCADA and various manual monitoring, inspection and testing activities performed by the WWTP operators, including biosolids sampling for vector attraction reduction, pathogens and heavy metals to meet the 503/308 requirements. All required permits are maintained at the treatment plants.

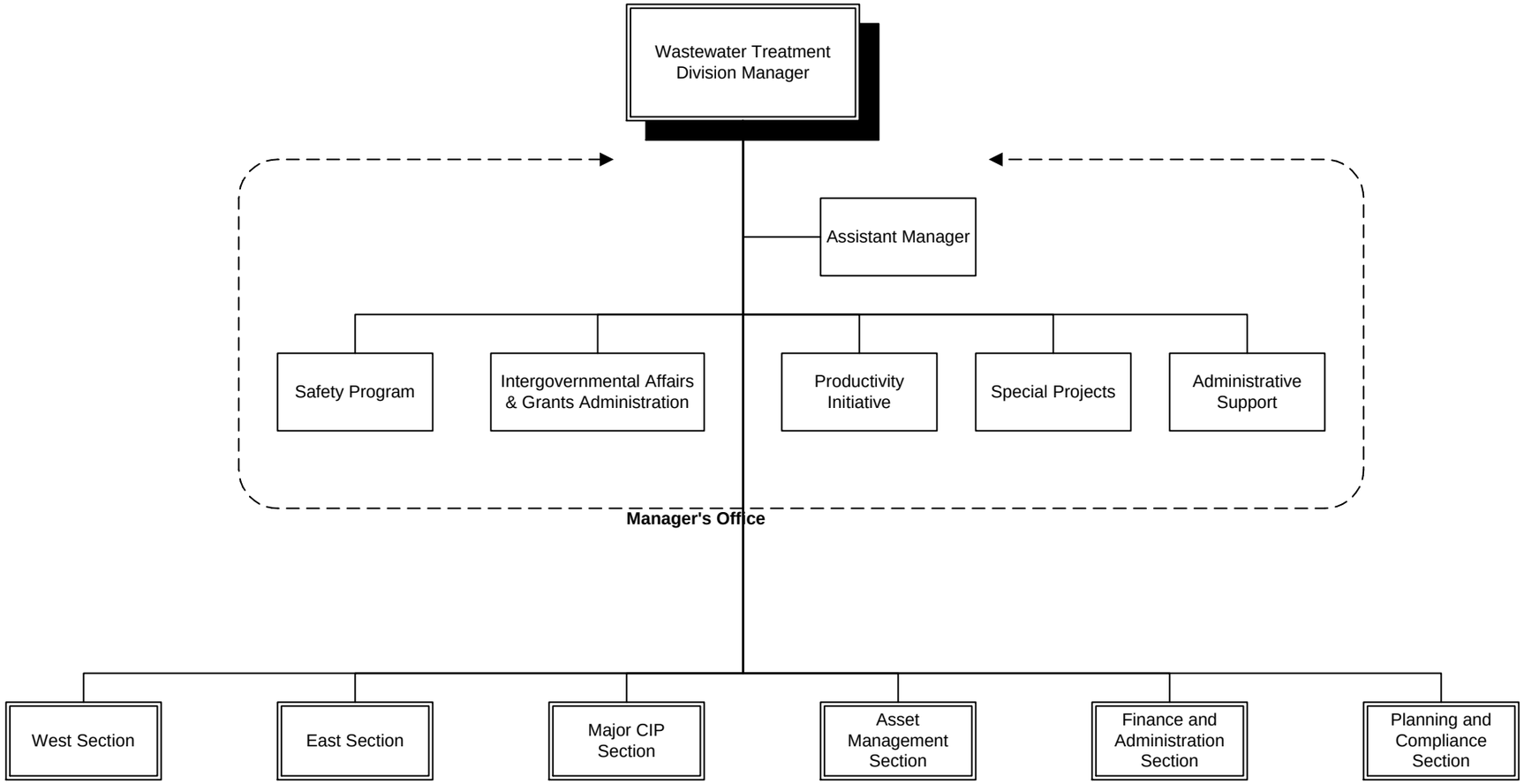
- **Finance and Administration Section** includes the WTD Human Resources group, which assigns and maintains job classifications/descriptions and administers training programs for WTD. It also provides all WTD information systems support, technical publication support and division financial services. WTD Finance works with all sections to prepare annual budgets for submittal to King County Council for review and approval.

- **Planning and Compliance Section – including the following groups:**
  - **Industrial Waste (IW)** administers local, state and federal pretreatment regulations as required by the County's NPDES permits and manages the pretreatment program for King County. This includes all the industrial user permitting, oversight monitoring, inspection and enforcement activities.

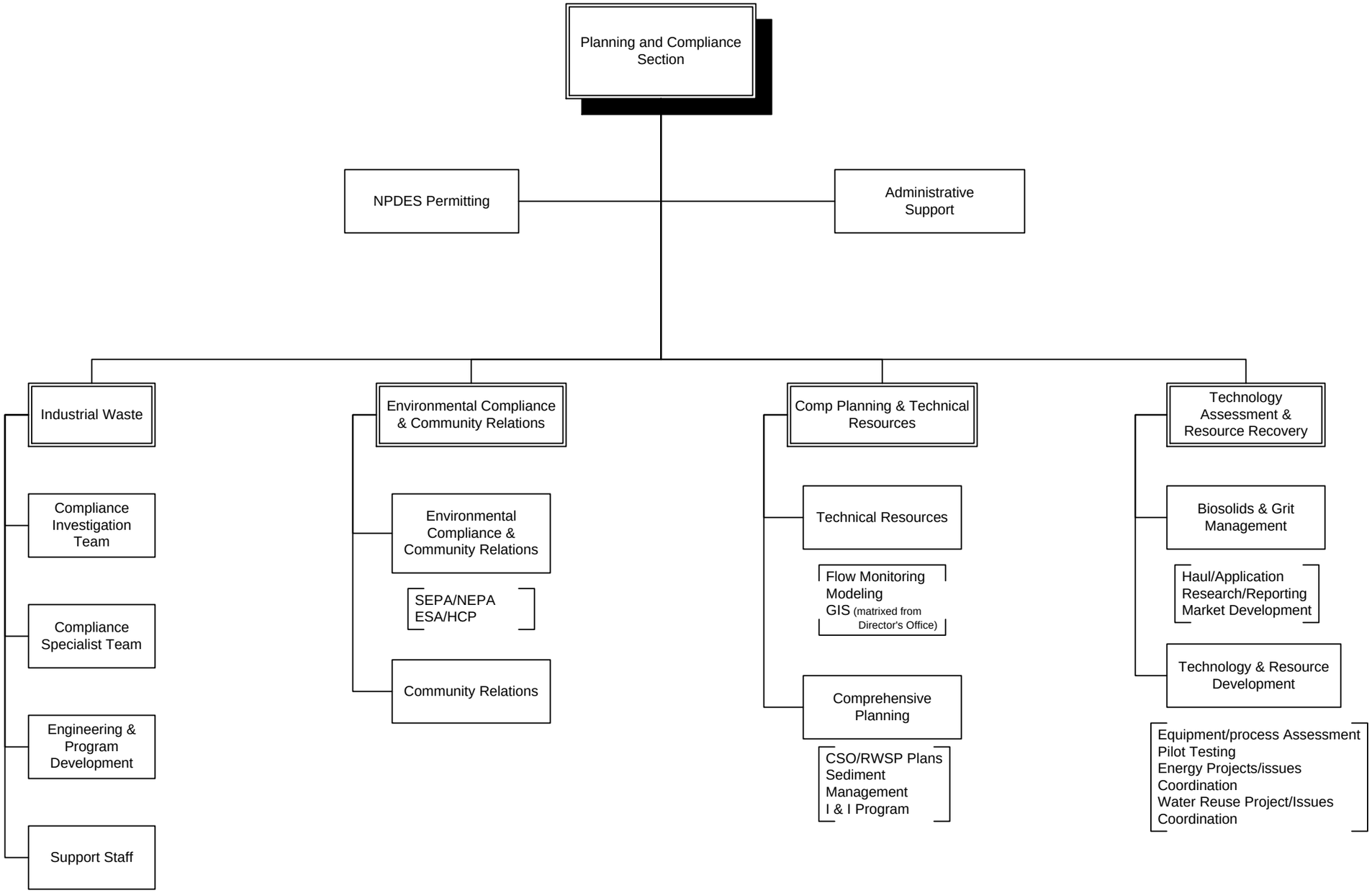
  - **Environmental Compliance and Community Relations (EC&CR**) conduct National Environmental Policy Act (NEPA) and State Environmental Policy Act (SEPA) reviews for all applicable wastewater projects. They are also responsible for internal independent audits of the biosolids reuse projects. Community relations personnel handle public involvement for wastewater projects, conduct treatment plant tours and participate in WTD response to emergencies and odor complaints.

  - **Technology Assessment and Resource Recovery (TARR)** has core responsibility for the transport, distribution and final end use of biosolids, which are primarily performed by our contractors. This includes the following projects which are overseen by TARR Project Managers: land application/recycling, composting, marketing of biosolids, management of the public participation/communications activities, in conjunction with WTD Community Relations and overall management of the EMS. All official biosolids regulatory permit requirements are also maintained by this group.

- **Contractors** are limited to biosolids transportation, compost and recycling application contracts. Detailed descriptions of contractors' roles and responsibilities can be found in the individual contracts as well as the project land application plans.

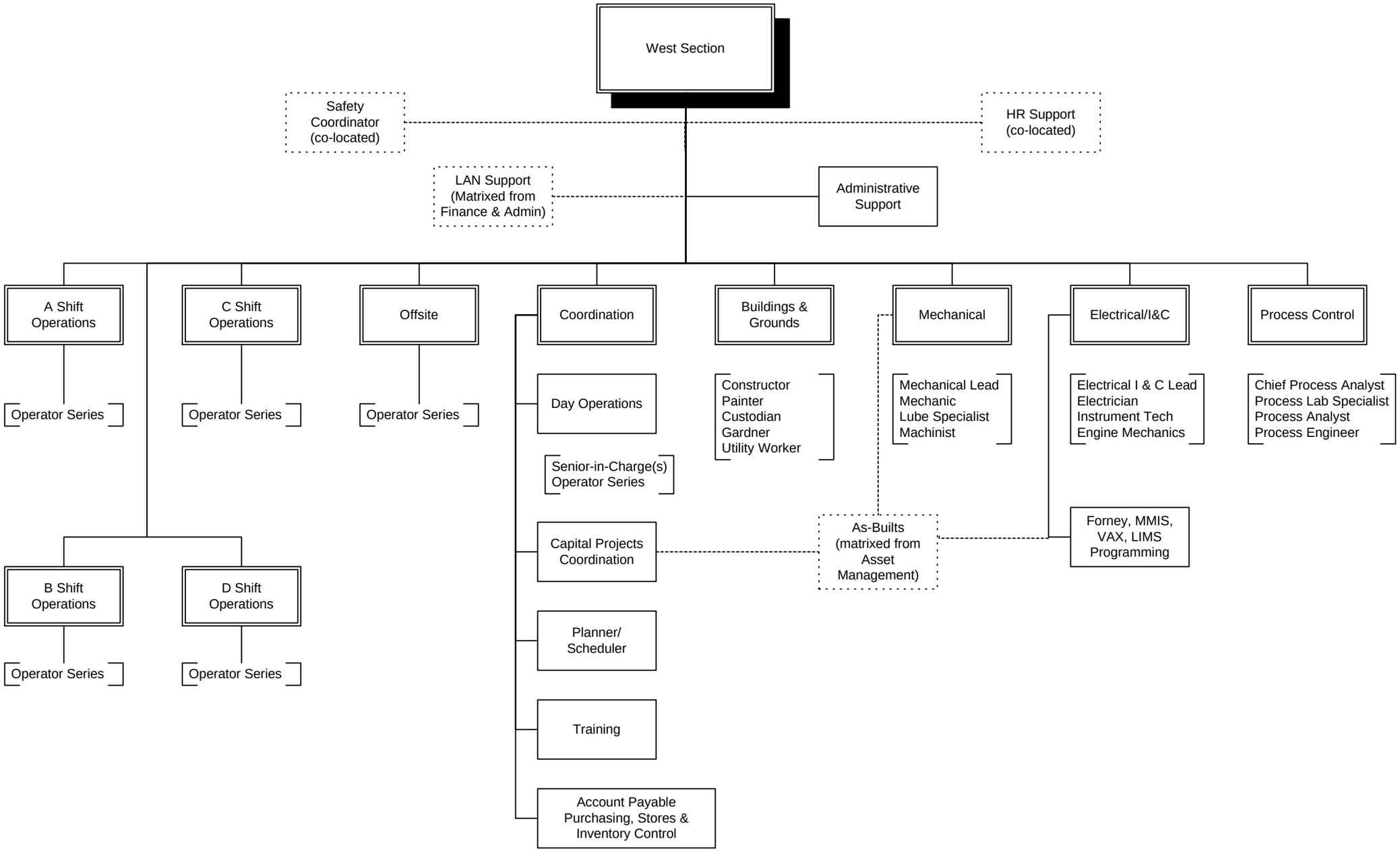

Wastewater Treatment Division Manager
Assistant Manager
Safety Program
Intergovernmental Affairs & Grants Administration
Productivity Initiative
Special Projects
Administrative Support
Manager's Office
West Section
East Section
Major CIP Section
Asset Management Section
Finance and Administration Section
Planning and Compliance Section

November 29. 2001



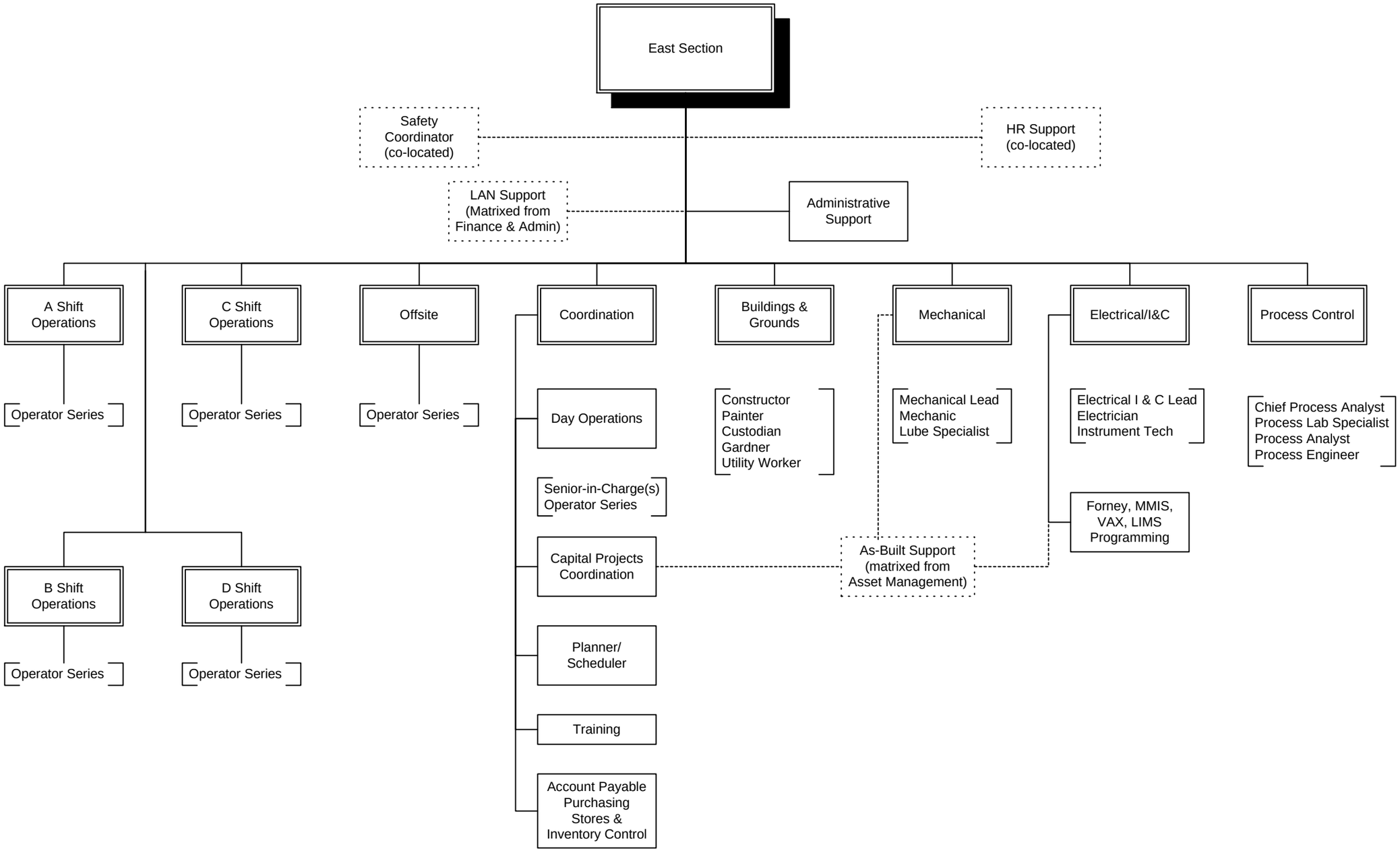
WTD2002_orgchart.vsd

November 29. 2001



WTD2002_orgchart.vsd

November 29. 2001



WTD2002_orgchart.vsd

ELEMENT 8: EMS AND BIOSOLIDS TRAINING

Background

The Environmental Management System (EMS) Coordinator is responsible for assuring that all affected staff and contractors in the biosolids value chain are trained on the Wastewater Treatment Division (WTD) EMS Manual as it relates to their job-specific tasks and activities.

King County Human Resources Division (HRD) is responsible for assuring that training is available to all staff for a variety of skills necessary to perform their roles and responsibilities and enhance their careers. King County WTD is responsible for assuring a wide range of training is available to all WTD staff so they can develop the necessary skills and knowledge to correctly and consistently perform their assigned job-specific tasks and activities. If specific training is required, WTD will coordinate the training based upon the needs of the employee and/or division.

TARR project managers for the biosolids end use sites are responsible for assuring that adequate training is provided to the contractors on their duties and responsibilities specified in their contracts, as well as their EMS roles and responsibilities.

EMS PROCEDURE SP-8-1: EMS TRAINING

Purpose

To describe WTD's training program to educate all affected staff and contractors on the WTD EMS Manual and how it relates to their job-specific roles and responsibilities.

Scope

Training curriculums and methods cover the skills and knowledge necessary for employees and contractors throughout the biosolids value chain to understand the EMS fundamentals and its relationship to their jobs.

Definitions: See Glossary of Key Terms

References:

- EMS Manual:
  - Element 2: Biosolids Policy
  - SD-4-1: List of Legal Requirements
  - SD-7-1: Roles and Responsibilities for all EMS Elements
  - SD-8-1: EMS Training Requirements
  - SP-12-3: Management of Change Procedure

- Support Documentation:
  - Table 3-A: Critical Control Points and Operational Controls for Biosolids Value Chain
  - Table 5: Action Plan for Element 5 Goals and Objectives
- EMS files:
  - WTD EMS Training Manual
- Other:
  - National Biosolids Partnership (NBP) Biosolids EMS Guidance Manual
  - NBP EMS Third Party Verification Auditor Guidance

Responsible Persons:

- WTD Management
- EMS Training and Development Teams:
  - <u>Internal Team (for WTD staff):</u>
    - EMS Coordinator
    - EMS Project Team
    - Treatment Plant Trainers
    - Training Data Management Coordinator
    - Industrial Waste Trainer
  - <u>External Team (for Contractors):</u>
    - EMS Coordinator
    - Contractor trainers, if any
    - TARR Project Managers

Procedure SP-8-1-2:

1. EMS Project Team shall identify necessary participants (existing, new and reassigned) and establish EMS Training and Development Teams (Internal and External).

2. EMS Training and Development Teams shall establish, review and revise job-specific biosolids EMS training requirements for staff and contractors, based on EMS roles and responsibilities (SD-7-1), and provide input on appropriate curricula.

3. EMS Training and Development Teams shall ensure that training requirements are consistent with current WTD policy (Element 2), goals and objectives (Table 5), and new or modified legal (SD-4-1) or other requirements (Table 3-A) applicable to the EMS.

4. WTD Management, or designated trainers, shall approve final training plans and establish/provide necessary resources to implement the required training.

5. TARR Project Managers shall annually ensure that all biosolids-related contractors have been trained on their EMS roles and responsibilities.

6. EMS Training and Development Teams, or other appointed staff, shall utilize the recordkeeping system(s) (SD-8-1) to track EMS training requirements and review and update as necessary. Training courses will be provided at least once or until material is thoroughly understood. Refresher courses will be given as deemed necessary by the EMS Training and Development Teams.

7. EMS Training and Development Teams at least annually shall inform the EMS Coordinator of changes in training programs that may necessitate updates in EMS documents (thus initiating the Management of Change Procedure SP-12-3).

SD-8-1-4: EMS Training Requirements

Role	EMS Awareness Course	EMS Training Course	Attend EMS workshops	Read EMS Guidance documents	Read EMS Auditor Guidance	EMS Auditor training
WTD Management	X	X				
EMS Project Team	X	X	X	X	X	
EMS Coordinator	X	X	X	X	X	X
Regulatory Coordinators	X					
TARR Communications Team	X	X		X		
WTD Community Relations	X					
Training and Development Team	X	X		X		
Emergency Preparedness and Response Team	X			X		
EMS Audit Team	X	X		X	X	X
TARR Team, Biosolids haul and application	X	X		X		
Remaining WTD staff within the Biosolids Value	X	X				

EMS Awareness Course - provides general overview of EMS program - may include: biosolids policy, overall EMS structure/benefits, summary of goals/objectives, critical control points and operational controls.

EMS Training Course - provides more in-depth instruction on KC EMS manual with emphasis on biosolids policy, goals & objectives, how their jobs relate to critical control points, operational controls and SOP

Attend EMS workshops - training workshops sponsored by the National Biosolids Partnership to provide in-depth EMS training on all elements to demonstration agency representatives (attend as time and budget permit).

Read (applicable) EMS Guidance documents - have clear understanding of EMS guidance documents and materials prepared by the National Biosolids Partnership (only one(s) related directly to and applicable to the readers job responsibilities).

Read EMS Auditor Guidance - have clear understanding of the EMS Auditor guidance documents as prepared by the National Biosolids Partnership.

EMS Auditor training - training course offered by external company to provide in-depth training on how to conduct a certified management system audit. Optional for staff if we decide to perform internal audits using KC staff.

EMS PROCEDURE SP-8-2: TRAINING ON BIOSOLIDS ACTIVITIES

Purpose

To describe WTD's training program to educate all affected staff and contractors on biosolids activities and how they relate to their job-specific roles and responsibilities.

Scope

Training curriculums and methods cover the skills and knowledge necessary for employees and contractors to consistently perform their assigned biosolids-related duties at critical control points throughout the biosolids value chain.

Definitions: See Glossary of Key Terms

References:

- EMS Manual:
  - Element 2: Biosolids Policy
  - SD 4-1: List of Legal Requirements
  - Element 5: Goals and Objectives for Continual Improvement
  - SP-7-2: Biosolids Activities Roles and Responsibilities
  - SD-8-2: Training Requirements for Biosolids Activities
  - SP-12-3: Management of Change Procedure
- Support Documents:
  - Table 3-A: Critical Control Points and Operational Controls for Biosolids Value Chain
- Other:
  - Training Courses (including safety) for treatment plant personnel
  - New Employee Training
  - Training Plans for Employees
  - Land Application Plans for Boulder Park, Green Valley, Weyerhaeuser and Mountains to Sound projects.
  - Biosolids haul and application contracts.
  - WTD Employee Information System (WEIS) database

Responsible Persons:

- EMS Coordinator
- EMS Project Team
- WTD Management

- Biosolids Training and Development Teams:
  - Internal Team (for WTD staff):
    - Treatment Plant Trainers
    - Training Data Management Coordinator
    - WTD Human Resources Division
    - WTD Safety Coordinator
    - WTD Training Coordinator
    - WTD Section Supervisors
  - External Team (for Contractors):
    - Contractor trainer, if any
    - Technology Assessment and Resource Recovery (TARR) Project Managers

Procedure SP-8-2-2:

1. The Biosolids Training and Development Teams shall annually identify necessary participants (existing, new and reassigned) and establish, review and revise job-specific biosolids training requirements for staff and contractors, based on biosolids roles and responsibilities (SP-7-2), and provide input on appropriate courses and curricula.

2. Section Manager and/or their appointed designee, shall annually coordinate with all affected staff to create appropriate training plans.

3. The Biosolids Training and Development Teams shall ensure that training requirements are consistent with current WTD policy (Element 2), goals and objectives (Element 5), and new or modified legal (SD-4-1) or other requirements (Table 3A) applicable to the biosolids value chain.

4. WTD management shall annually approve, establish and provide necessary resources to implement the required training, either in-house or through outside organizations.

5. TARR Project Managers shall ensure that all biosolids-related contractors have been trained on their biosolids roles and responsibilities (SP-7-2) as defined in their contracts and related documents.

6. The Biosolids Training and Development Teams, or appointed staff, shall utilize the recordkeeping system(s) (SD-8-2 and/or WEIS database) to track biosolids training and review and update these items as necessary. Training courses will be provided at least once. Refresher courses will be given as deemed necessary by the Biosolids Training and Development Teams or WTD Management.

7. The Biosolids Training and Development Teams at least annually shall inform the EMS Coordinator of changes in training programs that may necessitate updates in EMS documents (thus initiating the Management of Change Procedure SP-12-3).

SD-8-2-3: Training Requirements for Biosolids Activities

Role	Biosolids Program Overview	Biosolids Legal Requirements	Public Outreach /Communications	SOPs, work instructions	Emergency response / Safety	Monitor and Measurement records	Loading and Transport	Delivery and Storage	Land Application	Certifi-cation
WTD Management	X	X	X		X					
Local Governmental Affairs Officer		X								
WWTP Operators	X		X	X	X	X	X			X
IW Inspectors	X	X		X	X	X				
WTD Community Relations	X		X							
TARR Project Managers	X	X	X	X	X	X	X	X	X	
Haul Contractor	X		X		X		X	X		
Application Contractors	X	X	X	X	X	X		X	X	

Biosolids Program Overview - provides a general overview of the biosolids management policy, biosolids quality, and how solids are created, handled and recycled.

Biosolids Legal Requirements - provides more in-depth information on specific legal, quality, environmental issues. and public acceptance requirements for the organization.

Public Outreach/Communications - provides internal/external biosolids communications regarding biosolids activities, goals & objectives and EMS status.

SOPs, work instructions - specific to each value chain category, job classification/duties.

Emergency response / Safety - training and simulation drills on biosolids emergency, abnormal situation response and safety factors.

Monitor and Measurement records - required testing, inspections, monitoring, sampling, calibration and the associated recordkeeping requirements.

Loading and Transport - requirements for loading trucks, cleaning, manifesting, haul tickets, routing, driver's licensing.

Delivery and Storage - requirements for unloading trucks, cleaning, storage area prep and maintenance (including all requirements as specified in haul contract).

Land Application - requirements for agronomic application rate, buffers, recordkeeping, signage and monitoring (including all requirements as specified in application contracts).

Certification - WWTP operator certification programs (levels 1-4), professional training, community college and college courses.

ELEMENT 9: COMMUNICATION PLANS

Background

King County Wastewater Treatment Division (WTD) has established Communications Plans to provide staff (internal) and other interested parties (external) with information on its biosolids and Environmental Management System (EMS) activities. These plans are coordinated with other communication programs within the agency including:

Department of Natural Resources and Parks (DNRP)
Technology Assessment and Resource Recovery (TARR)

The process for establishing and updating the EMS Communications Plan can be found in procedure SP-9-1. The process for establishing and updating the Biosolids Communications Plan can be found in procedure SP-9-2.

King County also has a formal procedure for responding to inquires and requests for information on its biosolids and EMS activities as found in procedure SP-9-3.

EMS PROCEDURE SP- 9-1: EMS COMMUNICATIONS PLAN

Purpose

To define the process for providing staff (internal), contractors and interested parties (external) with ongoing education, outreach and information on biosolids EMS activities through a comprehensive Communications Plan.

Scope

The EMS Communications Plan incorporates a combination of methods, including: brochures; news releases; published articles; fact sheets; newsletters; meetings of: management team, supervisors, other WTD committees, staff, contractors, interested parties, Northwest Biosolids Management Association, and Mountains to Sound Greenway Trust; the TARR Internet and Intranet web pages; and the annual Biosolids Quality Report. The EMS Communications Plan is closely linked with Public Participation in Planning (Element 6).

Definitions: See Glossary of Key Terms

References:

- EMS Manual:
  - Element 2: Biosolids Policy
  - SP-6-1: Public Participation in Planning
  - SP-7-1: EMS Roles and Responsibilities; plus SD-7-1

  - SP-12-3: Management of Change Procedure
  - SP-15-1: EMS Performance Report
  - SP-17-1: Management Review
- Support Documentation:
  - Table 7A: EMS Roles & Responsibilities
  - Plan 9A: EMS Communications Plan for WTD's Biosolids Value Chain (text)
  - Table 9A: Action Plan for EMS Communications
- EMS files:
  - SR-9-1: EMS Communications Effectiveness Report
- Other:
  - WTD Communications Plan

Responsible Persons:

- EMS Coordinator
- EMS Project Team
- WTD Management
- TARR Communications Team

Procedure SP-9-1-3:

1. The EMS Project Team & TARR Communications Team (with input from other interested parties) shall establish and update at least annually the EMS Communications Plan (Plan 9A) and the associated Action Plan for EMS Communications (Table 9A) applicable to WTD EMS activities.

2. WTD Management and/or their appointed designees, shall review the EMS Communications Plan and Action Plan under their jurisdiction and identify additions or deletions.

3. The EMS Coordinator shall compile the proposed changes to the EMS Communications Plan and Action Plan and incorporate any related changes from the Public Participation Plan (SP-6-1).

4. The EMS Coordinator shall update the EMS Communications Plan and Action Plan and initiate the Management of Change Procedure (SP-12-3) to consider and complete required updates in EMS documents, as required.

5. The EMS Project Team and/or the TARR Communications Team shall distribute the updated EMS Communications Plan to all affected parties to ensure that everybody is aware of their roles and responsibilities (SP-7-1).

6. At least annually, the EMS Coordinator shall create an EMS Communications Effectiveness Report (SR-9-1) to compile accomplishments and results of the Action Plan for EMS Communications. These results will then be summarized in the Biosolids EMS Performance Report (SP-15-1) with recommendations for future changes (Element 17).

EMS PROCEDURE SP-9-2: BIOSOLIDS COMMUNICATIONS PLAN

Purpose

To define the process for providing staff (internal), contractors and interested parties (external) with education, outreach and information on WTD biosolids activities through a comprehensive Communications Plan.

Scope

The Biosolids Communications Plan uses a combination of methods, including brochures; news releases; published articles; fact sheets; newsletters; meetings of: management team, supervisors, cross-sectional teams, other WTD committees, staff, contractors, interested parties, Northwest Biosolids Management Association, and Mountains to Sound Greenway Trust; the WTD and TARR Internet and Intranet web pages; and the annual Biosolids Quality Report. The Biosoldis Communications Plan is closely linked with Public Participation in Planning (Element 6).

Definitions: See Glossary of Key Terms

References:

- EMS Manual:
  - Element 2: Biosolids Policy
  - SP-6-1: Public Participation in Planning
  - SP-7-2: Roles and Responsibilities for Biosolids Activities
  - SP-12-3: Management of Change Procedure
  - SP-15-1: EMS Performance Report
  - SP-17-1: Management Review
- Support Documentation:
  - Table 3-A: Critical Control Points and Operational Controls for Biosolids Value Chain
  - Plan 9B: Biosolids Communications Plan for WTD's TARR (text)
  - Table 9B: Action Plan for Biosolids Communications
  - Table 9C: List of Biosolids Documents and Brochures
  - Table 9D: List of Current Biosolids Cross-sectional Teams
- EMS files:
  - SR-9-2: Biosolids Communications Effectiveness Report
- Other:
  - WTD Communications Plan

Responsible Persons:

- EMS Coordinator
- EMS Project Team
- WTD Management
- WTD Community Relations
- TARR Communications Team

Procedure SP-9-2-3:

1. The TARR Communications Team shall establish and update at least annually the Biosolids Communications Plan (Plan 9B) and associated Action Plan for Biosolids Communications (Table 9B) applicable to WTD biosolids activities.

2. The key communication contacts, shall review the Biosolids Communications Plan and Action Plan under their jurisdiction and identify additions or deletions.

3. The TARR Communications Team shall compile the proposed changes to the Biosolids Communications Plan and Action Plan Plan and incorporate any related changes from the Public Participation Plan (SP-6-1).

4. The WTD Community Relations staff, and/or their appointed designees, shall be informed of and review any proposed changes to the Biosolids Communications Plan and Action Plan.

5. The TARR Communications Team shall update the Biosolids Communications Plan and Action Plan, based on this review process.

6. The EMS Coordinator shall initiate the Management of Change Procedure (SP12-3) to consider and complete updates in related documents, as required.

7. The TARR Communications Team shall distribute the updated Biosolids Communications Plan to all affected parties to ensure that everybody is aware of their roles and responsibilities (SP-7-2).

8. At least annually, the TARR Communications Team shall create a Biosolids Communications Effectiveness Report (SR-9-2) to compile accomplishments and results of the Action Plan for Biosolids Communications. These results will then be summarized in the EMS Performance Report (SP-15-1) with recommendations for future changes (Element 17).

EMS PROCEDURE SP-9-3: RESPONDING TO INQUIRIES, REQUESTS AND COMMENTS

Purpose

To assure an effective and timely response to all inquiries, requests and/or comments pertaining to WTD biosolids and EMS activities.

Scope

The procedure covers all types of inquiries, requests and comments, including requests for information about WTD biosolids and EMS activities. Inquiries, request and comments are received through letters, over the telephone, via email, through the WTD or TARR web sites and from direct contact with customers and other interested parties.

References:

- EMS Manual:
  - SP-6-1: Public Participation in Planning
  - SP-7-1: EMS Roles and Responsibilities; plus SD-7-1
  - SP-7-2: Roles and Responsibilities for Biosolids Activities
  - SF-9-3: Communication Log
- Support Documentation:
  - Table 3-A: Critical Control Points and Operational Controls for Biosolids Value Chain
  - Table 7A: EMS Roles & Responsibilities
  - Table 9C: List of Biosolids Documents and Brochures
  - Form 9E: King County TARR Communications Record
- Other:
  - Biosolids Information Packet/Press Kit
  - EMS Guidance documents (NBP Biosolids EMS Guidance Manual, NBP National Manual of Good Practice, NBP Code of Good Practice)
  - King County News Media Relations Guidelines

Responsible Persons:

- EMS Coordinator
- EMS Project Team
- WTD Management
- WTD Community Relations
- DNRP Public Affairs

Procedure SP-9-3-3:

1. WTD classifies biosolids and EMS inquires to one of the following categories: 1) biosolids EMS project; 2) biosolids information, including public health or environmental issues; 3) educational materials; 4) GroCo biosolids compost, including where to purchase; 5) comments or complaints about biosolids projects; and 6) media requests.

2. Media requests (category 6 above) are always directed to the DNRP Manager of Public Affairs, or their staff. They use a press kit for biosolids to develop all press releases and responses to the media. When coordinating a response, the Public Affairs Manager may request technical information from biosolids staff or ask staff to be spokespersons.

3. The first five categories are handled by various staff as appropriate. Inquiries that come in through WTD's web site may initially be directed to our WTD Community Relations staff. They may answer some general inquiries or send out appropriate brochures or documents (Table 9C). They will direct more technical or detailed questions to appropriate biosolids or EMS staff. All such communications are recorded on Form 9E (or personal notebooks/emails) and responses are made in a *timely* (initial response within 2-4 days) and *complete* (may require further follow-up which could take from a few days to a few weeks) manner.

4. Inquiries, request or comments that are received by telephone, letter, email or personal contact are routed by staff to the most appropriate or knowledgeable person for a timely and complete response and recorded on Form 9E or personal notebook/emails.

5. Any inquiries coming into the DNRP office are recorded electronically in the Public folders: Natural Resources: Correspondence: "_____ (the current year) Correspondence tracking.xls". Other EMS and biosolids communications are recorded on tracking log SF-9-3.

6. When deemed appropriate in the judgment of the WTD Management, the DNRP Public Affairs Manager and the DNRP Director will be apprised of inquiries, requests and comments. In their judgment, further notification of these communications will be made to the King County Public Affairs Manager, the Executive and staff, and legal counsel as appropriate.

SF-9-3 : Communications Log (see Communication binder)		
Date	**Nature of Inquiry, Request or Comment**	**Location of Detailed, Follow-up Information (cross-reference)**

ELEMENT 10: OPERATIONAL CONTROLS

Background

King County Wastewater Treatment Division (WTD) has established a procedure for identifying and updating operational controls and their associated Standard Operating Procedures (SOPs) for all critical control points (Element 3) throughout the biosolids value chain. Procedure SP-10-1 covers the identification and updating of operational controls along with the associated SOPs. Operational controls fall into the following categories:

- Wastewater Pretreatment and Collection
- Wastewater Treatment and Solids Generation
- Solids Conditioning, Stabilization and Handling
- Biosolids Transportation Activity (at treatment plant and on route)
- Biosolids Storage Alternatives (at end use sites)
- Biosolids Land Application Operations
- Class A Product
- Odor Control Management (at treatment plant, on route and at end use site)

EMS PROCEDURE SP-10-1: IDENTIFYING AND UPDATING OPERATIONAL CONTROLS AND THE ASSOCIATED SOPS

Purpose

To identify and update the operational controls and the associated SOPs at all critical control points throughout the biosolids value chain.

Scope

The procedure covers all operational controls and SOPs for all critical control points throughout the biosolids value chain, from pretreatment to final end use of biosolids.

Definitions: See Glossary of Key Terms

References:

- EMS Manual:
  - Element 2: Biosolids Policy
  - SP-3-1: Updating Critical Control Points
  - SP-4-1: Identifying and Tracking Legal Requirements
  - SP-12-3: Management of Change
  - SP-13-1: Monitoring and Measurement
- Support documentation:
  - Table 3-A: Critical Control Points and Operational Controls for Biosolids Value Chain.
  - Table 3-B: Consistency of Critical Control Points, Operational Controls and SOPs to the National Manual of Good Practice.
  - Table 4: Tracking for Biosolids Legal Requirements
  - Table 10: Level 3 Master List of SOP Documents throughout the Biosolids Value Chain.
  - Table 13: Level 4 Master List of Logs, Reports and Records throughout the Biosolids Value Chain.
- Other:
  - Washington Department of Ecology Biosolids Management Guidelines (BMGs).
  - NBP National Manual of Good Practice for Biosolids, June 2003.
  - Land application plans/operations plans for all end use sites.
  - Contracts for all end use sites.

Responsible Persons:

- EMS Coordinator
- EMS Project Team
- WTD Management

Procedure SP-10-1-2:

1. The EMS Coordinator will communicate to the Section Managers and/or their appointed designee, the need to review and update, if necessary, the list of operational controls applicable to the critical control points (Element 3) identified throughout the biosolids value chain. This review shall be performed at least annually.

2. The Section Manager and/or their appointed designee, shall review the current list of operational controls (Table 3A) under their jurisdiction and identify additions or deletions from the list along with associated changes to operational control SOPs (Table 10) and monitoring and measurement reports and records (Table13).

3. Following review of the operational controls, the Section Manager and/or their appointed designee, will propose changes.

4. The EMS project team shall review and compile the changes to the list. When needed, the project team will facilitate communication between business teams/work groups.

5. The EMS Coordinator shall initiate the Management of Change Procedure (SP-12-3) to consider and complete required updates in operational control SOPs, monitoring and measurement reports and records and other EMS documents, as required.

6. The Section Managers, and/or their appointed designees, shall modify the SOPs or O&M manuals based on these changes, if necessary. Implementation of the changes will begin after all affected staff and contractors are trained.

ELEMENT 11: EMERGENCY PREPAREDNESS AND RESPONSE

Background

King County Wastewater Treatment Division (WTD) has well-developed emergency preparedness and response plans and procedures for biosolids-related emergencies or abnormal conditions that could:

- impact biosolids quality,
- result in noncompliance with biosolids legal/regulatory requirements,
- impact public safety, public health or the environment,
- create public nuisance/acceptance problems.

Each section within the biosolids value chain has plans and procedures to respond to emergency situations that relate to biosolids (See References).

EMS PROCEDURE SP-11-1: EMERGENCY PREPAREDNESS AND RESPONSE PLANS AND PROCEDURES

Purpose

To prepare for, respond effectively and minimize the risk of abnormal or emergency situations that result in potential negative environmental impacts or problems with biosolids regulatory compliance, quality, public safety and health or public acceptance.

Scope

A combination of emergency response plans and procedures (see References) cover all situations associated with biosolids-related activities throughout the biosolids value chain, including activities performed by contractors.

Definitions: See Glossary of Key Terms

References:

- EMS Manual:
  - Element 2: Biosolids Policy
  - Element 4: Legal and Other Requirements
  - SP-7-2: Roles & Responsibilities for Biosolids Activities
  - SP-8-2: Training on Biosolids Activities
  - SD-11-1: Description of Documents Covering Emergency Preparedness and Response Plans and Procedures.
  - SP-12-3: Management of Change Procedure
- Support Documentation:
  - Table 3-A: Critical Control Points and Operational Controls for Biosolids Value Chain (some of our "Other" requirements)
- Other:
  - Biosolids & Grit Haul Driver's Handbook
  - Emergency Response Plan for West Point (WP) and South Plant (SP)
  - WTD Overflow Manual
  - Industrial Waste (IW) Procedures Manual
  - Safety Manual for Biosolids Land Application Operations
  - Land application plans/operation plans for all end use sites
  - Process Safety Management and Risk Management Program Manual for WP and SP
  - WTD Employee Information System (WEIS) database

Responsible Persons:

- EMS Coordinator
- EMS Project Team
- WTD Management
- Emergency Preparedness and Response Team:
  - WTD Safety Officer
  - WTD Safety Specialist/Emergency Planner
  - WP Coordination Supervisor
  - SP Coordination Supervisor
  - IW Safety Coordinator
  - TARR Project Managers

Procedure SP 11-1-3:

1. The EMS Project Team shall identify necessary participants (SP-7-2/existing, new and reassigned) and establish an Emergency Preparedness and Response Team.

2. The Emergency Preparedness and Response Team shall review, revise, update and test, at least annually, emergency preparedness and response plans and procedures (SD-11-1) that involve biosolids activities in order to prevent compliance violations (Element 4), environmental impacts and public safety and health impacts (Table 3-A).

3. WTD Management, and/or their appointed designee, shall review and approve all updates to the Emergency Preparedness and Response plans and procedures at least annually.

4. The Emergency Preparedness and Response Team and WTD Management shall ensure that ongoing emergency training (SP-8-2) is provided to all employees (existing, new and reassigned) and maintain appropriate records in the WEIS database.

5. WTD Management shall approve, establish and provide necessary resources to implement the required emergency plans and procedures.

6. The TARR Project Managers shall ensure and implement at least annually the biosolids contractors' compliance with emergency preparedness and response plans and procedures specified in the bid and contract documents and maintain appropriate records in project files.

7. The Emergency Preparedness and Response Team shall inform the EMS Coordinator of changes in emergency plans and procedures that may necessitate updates in EMS documents (thus initiating the Management of Change Procedure SP-12-3).

SD-11-1-3: Description of Documents Covering Emergency Preparedness and Response Plans and Procedures

Document	Date Last Updated	Purpose	Events Covered	Responsible Person
Biosolids & Grit Haul Driver's Handbook	Jun-00	To provide procedures, contact persons, site layouts and maps for plant personnel, truck drivers and end use site managers.	Biosolids loading and unloading procedures, accidents or spills at the plant, in-route and at end use sites.	Mark Lucas, Project Manager
Emergency Response Plan for West Point and South Plant	Variable by topic	To prepare employees to respond quickly to emergencies that they may face at work in a manner that allows them to preserve their own safety, the safety of the public, ant the continued operation of the wastewater treatment system.	Hazardous material releases, earthquakes and fires at either plant. This plan applies to anyone visiting or working at the plants or at one of their associated offsite facilities.	Allen Alston, WTD Safety Officer
Wastewater Treatment Division Overflow Manual	Nov-02	To provide response and communication procedures and contact persons for West Point and South Plant personnel.	Emergency and planned wastewater overflows at the treatment plants.	Allen Alston, WTD Safety Officer
Process Safety Management and Risk Management Program Manual for West Point and South Plant	Nov-99	To meet state and federal requirements for safe management of highly hazardous chemicals.	Release of toxic, reactive, flammable or explosive chemicals at either plant, specifically chlorine, digester gas, hydrogen, propane and sulfur dioxide.	Kathy Bender, WTD Safety and Training Planner
Industrial Waste Program Procedures Manual	Jan-01	To provide procedures and contact persons for industrial waste inspectors.	Complaint calls and spills of any substance that can cause problems for either the treatment or collection systems.	Dana West, Communication Specialist
Land Application Plans for each end use site	Aug-98	To provide instructions and contact persons for end use site personnel. To be used in conjunction with *Biosolids & Grit Haul Driver's Handbook* above.	Traffic accidents, spills, misapplication of biosolids/run-off and work site accidents.	Mark Lucas, Doug Newlands, Roberta King, Lisa Vogel - Project Managers
Safety Manual for Biosolids Land Application Operations	Jan-95	To provide information about safe work practices and health related issues for biosolids project managers and end use site personnel.	General, site , equipment and vehicle safety considerations.	Julie Adams, WQ Planner

ELEMENT 12: DOCUMENTATION, DOCUMENT CONTROL AND RECORDKEEPING

Background

King County Wastewater Treatment Division (WTD) has developed procedures for document management (SP-12-1), records management (SP-12-2) and management of change (SP-12-3).

There are four levels of documents in the WTD Environmental Management System (EMS):

Level 1. Strategic Direction and Principles Documents – Describe the biosolids vision, mission and policies required by Element 2 (Where are we going? – example, King County Code, Regional Wastewater Services Plan),

Level 2. Management Systems Procedures and Documents – Describe the programmatic EMS procedures and contractual agreements used for planning, implementation, measurement, corrective action and review (What are the requirements and what needs to be done, when, where and by whom? – example, EMS Manual),

Level 3. Standard Operating Procedures (SOPs) – Describe the day-to-day operational control SOPs and monitoring/measurement SOPs being used (How do we get there – how do we operate and consistently achieve legal, quality and acceptance requirements every day? – example, O&M manuals, Land Application Plans, permits),

Level 4. Records – Reports, completed checklists, forms and other records documenting that requirements are being consistently met (How do we prove we are doing it? – example, annual report, maintenance log, haul order tickets).

EMS PROCEDURE SP-12-1: DOCUMENT MANAGEMENT

Purpose

To establish the procedures and practices needed to control EMS and WTD documents to make the EMS work effectively. Quality management is based on defining requirements and following them consistently all the time at every critical step in the process.

Scope

The Document Management Procedure establishes EMS and WTD document creation protocols, including approval by authorized staff, practices for naming/numbering documents, keeping them up-to-date and replacing ones that are out-of-date.

Definitions: See Glossary of Key Terms

References:

- EMS Manual:
  - Element 2: Biosolids Policy
  - Element 7: Roles and Responsibilities
  - SF-12-1: Level 2 Schedule for EMS Documents, Procedures and Records

- Support Documentation:
  - Table 3-A: Critical Control Points and Operational Controls for Biosolids Value Chain (some of our "Other" requirements)
  - Table 10: Level 3 Master List of SOP Documents throughout the Biosolids Value Chain
  - Table 13: Level 4 Master List of Logs, Reports and Records throughout the Biosolids Value Chain

Responsible Persons:

- EMS Coordinator
- EMS Project Team
- WTD Management

Procedure SP-12-1-2:

1. The EMS Project Team shall establish WTD's overall EMS document management and control system for establishing standard procedures for all EMS elements in an up-to-date EMS Manual (Level 2).

2. WTD Management and other affected staff shall review the EMS document management system under their jurisdiction and identify additions or deletions.

3. WTD Management shall approve, establish and provide necessary resources to implement the required EMS document management and control system.

4. The schedule template, SF-12-1, shall be used for all EMS documents and procedures and be maintained by the EMS Project Team and/or designated staff.

5. The following EMS document numbering system for Level 1 and 2 shall be used throughout the Biosolids Value Chain (the EMS identification system for Level 3 and 4 is explained below):

Level 1: Policy (see Element 2)

Level 2:
- Standard management system procedures: "SP" – "EMS Element #" – "Procedure #" – "Version #", (i.e., SP-12-1-1)
- Standard management system documents "SD" -- "EMS Element #" – "Procedure #" – "Version #", (i.e., SD-12-1-1)
  3. Standard Form: "SF" – "EMS Element #" – "Form #" – "Version #", (i.e., SF-12-1-1)
- Standard Report: "SR" – EMS Element #" "Report #" – "Version #", (i.e., SR-12-1-1)

6. WTD technical staff and Supervisors, and/or their appointed designees, shall establish WTD document management and control systems covering SOPs for operational control and monitoring and measurement (Level 3) and associated records, logs and reports (Level 4) at all critical control points throughout the biosolids value chain.

7. The schedule template, Table 10 (Level 3), shall be used for all WTD documents and maintained by WTD technical staff and Supervisors, and/or their appointed designees.

8. WTD Management and other affected staff shall review the WTD document management system under their jurisdiction and identify additions or deletions.

9. WTD technical staff and Supervisors working with the EMS Project Team, shall train all appropriate staff and contractors to maintain and update the required WTD documents information.

10. WTD Management shall approve, establish and provide necessary resources to implement the required WTD document management and control system.

11. The WTD document management schedule, Table 10, shall incorporate legally-mandated retention periods, as well as best management practices for each type of document.

12. Designated staff and/or the EMS Project Team, shall transfer WTD documents to central files as prescribed by the WTD document management schedules or maintain in the designated location.

Level 3: SOPs for Operational Controls used throughout the Biosolids Value Chain are listed in support document Table 10.

Level 4: Records, logs and reports used throughout the Biosolids Value Chain are listed in support document Table 13 (see SP-12-2 below).

13. The EMS Coordinator, or appointed designee, shall administer and maintain the EMS and WTD document management systems and coordinate necessary changes to other documents (thus initiating Management of Change Procedure SP-12-3).

EMS PROCEDURE SP-12-2: RECORDS MANAGEMENT

Purpose

To define the EMS and WTD records management systems.

Scope

The EMS and WTD records management procedures cover all required records and reports at all critical control points throughout the biosolids value chain. These procedures include tracking, scheduling, recordkeeping and checklists.

Definitions: See Glossary of Key Terms

References:

- EMS Manual:
  - Element 2: Biosolids Policy
  - Element 7: Roles and Responsibilities
  - SF-12-1: Level 2 Schedule for EMS Documents, Procedures and Records

- Support Documentation:
  - Table 3-A: Critical Control Points and Operational Controls for Biosolids Value Chain (some of our "Other" requirements)
  - Table 13: Level 4 Master List of Logs, Reports and Records throughout the Biosolids Value Chain.

Responsible Persons:

- EMS Coordinator
- EMS Project Team
- WTD Management

Procedure SP-12-2-2:

1. The EMS Coordinator, and/or appointed designee, shall develop, update and maintain a schedule of Level 2 EMS records for all elements of the EMS Manual.

2. The schedule template, SF-12-1, shall be used for all EMS records and maintained by the EMS Project Team and/or designated staff.

3. EMS Project Team, and/or designated staff, shall train all appropriate staff and contractors to maintain and update the required EMS records information.

4. WTD Management shall approve, establish and provide necessary resources to implement the required EMS records management system.

5. The EMS records management schedule shall incorporate legally-mandated retention periods, as well as best management practices for each type of record.

6. EMS Project Team, and/or designated staff, shall transfer EMS records to central files as prescribed by the EMS records management schedules or maintain in the designated location.

7. WTD technical staff and Supervisors, and/or designated staff, shall develop, update and maintain a schedule of required Level 4 WTD logs, reports and records (Table 13) at critical control points throughout the biosolids value chain.

8. WTD technical staff and Supervisors, and/or designated staff, shall train all appropriate staff and contractors to maintain and update the required WTD records information.

9. WTD Management shall approve, establish and provide necessary resources to implement the required WTD records management system.

10. The WTD records management schedule shall incorporate legally-mandated retention periods, as well as best management practices for each type of record.

11. WTD technical staff and Supervisors, and/or designated staff, shall transfer WTD records to central files as prescribed by the WTD records management schedules or maintain in the designated location.

12. The EMS Coordinator, or appointed designee, shall administer and maintain the EMS and WTD records management systems and coordinate necessary changes to other documents (thus initiating Management of Change Procedure SP-12-3).

PROCEDURE SP-12-3: MANAGEMENT OF CHANGE

Purpose

To assure that all EMS procedures and practices are kept up-to-date with the latest requirements and that staff and contractors throughout the biosolids value chain are fully trained and following these requirements.

Scope

This procedure covers centralized documentation of all types of EMS changes including changes in policy, organizational structure, critical control points, legal and other requirements, goals and objectives, public participation and communications plans, operational controls, emergency procedures, monitoring & measurement procedures or corrective action.

Definitions: See Glossary of Key Terms

References:

EMS Manual and all support documents
SF-12-2: Management of Change Record

Responsible Persons:

EMS Coordinator
- EMS Project Team
- WTD Management

Procedure SP-12-3-3:

1. The EMS Coordinator shall at least annually inquire of the EMS Project Team and applicable staff if there is a need to change any of the EMS-related documents and discuss the best way to initiate those changes.

2. EMS Project Team, WTD Management and staff shall communicate to the EMS Coordinator the possible need for changes in EMS policies, procedures and biosolids value chain activities related to the EMS and discuss the best way to initiate those changes.

3. Any proposed changes to the content of the EMS will be taken to WTD Management for their review, approval and resource allocation.

4. The EMS Coordinator, and/or appointed designee, shall update all EMS procedures and documents affected by the changes and record in SF-12-2. The EMS Coordinator will work with section managers or supervisors to update any related WTD documents, SOPs and records affected by the change. These items shall be updated following SP-12-1 Document Management.

5. The EMS Coordinator, section managers and supervisors shall assure that affected staff and contractors are re-trained on the revised EMS procedures and practices as soon as practical.

6. EMS Project Team, WTD Management and staff shall communicate to the EMS Coordinator changes in WTD policies, procedures, SOPs, biosolids practices and biosolids value chain activities related to the EMS as soon as they are initiated.

7. The EMS Coordinator shall identify those EMS and biosolids value chain activities impacted by the changes and initiate the management of change process, as indicated in steps 1-5 above. Section managers or supervisors will assign the appropriate individual(s) to design and implement the changes, including revisions to related WTD documents, procedures and records that must be updated. These items shall be updated following SP-12-1 Document Management.

8. WTD Management shall assure that affected staff and contractors are re-trained on the revised WTD procedures and practices as soon as practical.

SF-12-2-8: Management of Change Record

Element Number	Location	Effective Change	Responsible Staff	Other Effected Elements
1	EMS manual	Page 7 updated with new TARR Supervisor telephone number.	TARR Team	Support doc tables 4A, 9A, 10 and 13
		Page 1 added new paragraph about degrees of knowledge and Don's title. Pages 4 & 5 clarified name of project versus name of contractor.	EMS Project Team, TARR Team	none
		Re-emphasized paragraph 3 by bolding, clarified Vashon solids, deleted specific name of Director.	EMS Project Team	none
		Page 3, Background, added Platinum award for South Plant.	EMS Project Team	none
		Page 5, edited Forestry summary to include RAMCO and Intnl' Forestry	TARR Team	none
2	EMS manual	Most of element revised, especially Background and Procedure SP-2-1. Added Element 2 as reference to all other elements.	EMS Project Team	All, added reference to Element 2.
		Clarified paragraph 3 concerning policy statement, added web links to KC codes, added excerpts from applicable KC codes and policies. Updated SF-2-1.	EMS Project Team, TARR Team	none
		Edited Background to add new WTD Mission Statement, omit Letter of Understanding from References. Updated SF-2-1 with new mission statement information.	WTD Management	all
		Changed "mission" to "policy" in Background and SF-2-1. Added Theiler's memo of 3/05 regarding new EMS policy statement. Clarified Reference section.	WTD Management, EMS Project Team	all
3	EMS manual	Revised pages 1 & 2 under Background and References. Added Step 8 to Procedure SP-3-1.	EMS Project Team	10, 13
		Deleted old references and added new ones, included contractors where appropriate.	EMS Project Team, TARR Team	4, 10, 13
		Removed repetitive step #5 from SP-3-1.	EMS Project Team	10, 13
		Clarified Reference section.	EMS Project Team	12
4	EMS manual	SD-4-1, corrected typo under State Environmental Policy Act.	EMS Project Team	none
		SD-4-1, revised to match Table 3A & 4. Page 3 revised responsible person in procedure SP-4-1, step 2.		3
		Edited whole element to distinguish between legal and "Other" requirements and established corresponding tables. Added additional references, edited SD-4-1.	EMS Project Team	3, 10
		Edited SP-4-1 to refer to "Regulatory Coordinators" instead of regulatory team.	TARR Team	7, 8

Element Number	Location	Effective Change	Responsible Staff	Other Effected Elements
5	EMS manual	Moved procedure SP-13-2 to become SP-5-2 because it related more to G&O. Updated SD-5-1 to reflect new G&O for 2003.	EMS Project Team, TARR Team	13
		Updated SD-5-1 to reflect new G&O for 2004 and tried to meet all SMART criteria., clarified interested parties input to G&O, minor edits to SP-5-1 and 5-2.	EMS Project Team	6
		Added reference to El 6 in Background and SP-5-1. Updated SD-5-1. Edited references with new title for El 15 and 17.	EMS Project Team	6
		Edited SD-5-1, Goal #1, changed "achieve" to "maintain" and updated some completion dates.	EMS Project Team	none
		Clarified Reference section. Edited SD-5-1 to match updates to Table 5.	EMS Project Team	12
6	EMS manual	Change Public Info Coordinators to WTD Community Relations. Updated SF-6-1 with Public Participation activities.	TARR Team	9
		Modified SP-6-1, updated SF-6-1.	EMS Project Team, TARR Team	9
		Edited references with new title for El 15 and 17. Added new reference for support docs to augment Background. Updated SF-6-1 with recent events.	TARR Team	5, 9
		Edited reference for SF-9-3 with new name. Updated SF-6-1 with recent events.	EMS Project Team	9
		Clarified Reference section. Included commitment to Code of Good Practice in Background and History sections. Changed name of Table 6 and included Table 6A.	EMS Project Team	2, 9, 12
7	EMS manual	Updated SD-7-1 to include timeframes and more description of R&Rs. Updated SP-7-2 regarding job descriptions on page 4 and 6.	EMS Project Team, TARR Team	8
		Further defined R&Rs and team definitions throughout element and updated SD-7-1.	EMS Project Team	All
		Added references, modified procedures SP-7-1 and 7-2.	EMS Project Team	3, 8
		Removed repetitive step #4 from SP-7-1and combined step #2 and 3. Removed repetitive step #3 from SP-7-2. Edited SD-7-1 to match Table 7A.	EMS Project Team	none
		Edited SP-7-1and SD-7-1 to refer to "Regulatory Coordinators" instead of regulatory team.	TARR Team	4, 8
		Clarified Reference section. Eliminated Table 7.	EMS Project Team	12

Element Number	Location	Effective Change	Responsible Staff	Other Effected Elements
8	EMS manual	Updated SD-8-1 to add and define "applicable" EMS docs, delete some requirements for contractors, and clarify EMS Awareness Course.	EMS Project Team, TARR Team	7
		Added EMS Training Course to SD-8-1.Changed Public Info Coordinators to WTD Community Relations in both SD-8-1 & SD-8-2.		
		Clarified training for new or reassigned staff, added frequency of training and refresher opportunities.	EMS Project Team, TARR Team	3, 7
		Combined steps #4 and 5 in SP-8-1. Clarified WTD Management in step #2 of SP-8-2.	EMS Project Team	7
		Edited SD-8-1 to refer to "Regulatory Coordinators" instead of regulatory team.	TARR Team	4, 7
		Clarified Reference section.	EMS Project Team	12
9	EMS manual	Updated SP-9-2 to clarify responsible persons. Updated and corrected SP-9-3 under Support Docs. Clarified SF-9-3-1 column headings.	TARR Team	none
		Minor change to numbering system for tables in Element 9. Renamed Communication Record to Form 9E. Changed Public Info Coordinators to WTD Community Relations. Updated SF-9-3 with recent inquiries and requests.		
		Added references, modified procedures SP-9-3, updated SF-9-3.	EMS Project Team, TARR Team	6, 7
		Edited references with new title for El 15 and 17. Removed repetitive step #4 from SP-9-1	EMS Project Team	6
		Deleted reference to SF-9-3 from SP-9-1 and 9-2.	EMS Project Team	6
		Changed name of SF-9-3 to Communications Log and updated.	EMS Project Team	6
		Clarified Reference section.	EMS Project Team	12
10	EMS manual	Deleted SD-10-1 so only use Table 3A as reference for Operational Controls.	EMS Project Team, TARR Team	3
		Added references, included contractors where appropriate.	EMS Project Team	3, 4, 13
		Removed repetitive step #5 from SP-10-1.	EMS Project Team	3, 13
		Added reference to Land Application Plans and contracts under Support Docs.	EMS Project Team	13
		Clarified Reference section.	EMS Project Team	12

Element Number	Location	Effective Change	Responsible Staff	Other Effected Elements
11	EMS manual	Added "Process Safety Management" to Support Docs and SD-11-1-1.	EMS Project Team	none
		Clarify procedure SP-11-1, steps 4 & 6. Add database reference. Update SD-11-1 with new date.		
		Included reference to both plans and procedures for this element.	EMS Project Team	none
		Clarified Reference section.	EMS Project Team	12
12	EMS manual	Added clarifying footer to SF-12-2 and updated. Added "content of the" to SP-12-3, #3, page 8 of 8.	EMS Project Team	all
		Applied new definition of Mngt in SP-12-1, 12-2, 12-3. Updated SF-12-1 with location for Level 2 docs. Updated SF-12-2 with latest changes.	EMS Project Team	all
		Updated SF-12-2 with latest changes.		
		Updated SP-12-1, 12-2 and 12-3, and SF-12-2.	EMS Project Team	all
		Updated SF-12-2 with latest changes.	EMS Project Team	all
		Updated SF-12-2 with latest changes.	EMS Project Team	all
		Added examples for Level 1-4 documents in Background. Updated SF-12-2 with latest changes.	EMS Project Team	all
13	EMS manual	Deleted SD-13-1 so only use Table 3A as reference for Monitoring & Measurement. Moved procedure SP-13-2 to become SP-5-2 because it related more to G&O. Correct other small points to reflect lack of SP-13-2.	EMS Project Team, TARR Team	3, 5
		Added references, included contractors where appropriate.	EMS Project Team	3, 4, 10
		Removed repetitive step #5 from SP-13-1.	EMS Project Team	10, 13
		Added reference to Land Application Plans and contracts under Support Docs.	EMS Project Team	13
		Clarified Reference section.	EMS Project Team	12
14	EMS manual	Changed Corrective Action Team to EMS Audit Team in SP-14-2. Updated SF-14-4 with recent work orders for corrective actions.	EMS Project Team	16
		Revised SP-14-1to better reflect handling of nonconformances and changes at the various facilities. Added flow chart, SD-14-1, to outline the procedure. Changed titles and expanded purpose of forms SF-14-1 and SF-14-5 (laminated). Updated SF-14-4.	EMS Project Team	none
		Revised SF-14-4 to show completion dates.	EMS Project Team	none

Element Number	Location	Effective Change	Responsible Staff	Other Effected Elements
14	EMS manual	Edited references with new title for El 15 and 17. Updated status and completion dates on SF-14-4	EMS Project Team	none
		Revised SP-14-1 and 14-2 to better reflect how we handle nonconformances. Consolidated SF-14-1 and 14-5 to just have one corrective action record. Edited names of SF-14-2 and 14-3. Updated status and completion dates on SF-14-4.	EMS Project Team	none
		Clarified Reference section. Modified and/or updated SF-14-1 through 14-4. Created flow chart, SD-14-2.	EMS Project Team	12
15	EMS manual	Added Element 2 reference which changed pagination.	EMS Project Team	none
		Updated SP-15-1.	EMS Project Team	17
		Edited references with new title for El 15 and 17.	EMS Project Team	none
		Updated SP-15-1 to reflect actual procedure.	EMS Project Team	none
		Clarified Reference section. Added schedule graphic, SD-15-1	EMS Project Team	12
16	EMS manual	Changed responsible person under audit team to include WTD staff.	EMS Project Team	all
		Revised language in background, modified SP-16-1.	EMS Project Team	none
		Updated SP-16-1 to reflect actual procedure and inclusion of other agencies for Internal Audit team.	EMS Project Team	none
		Clarified Reference section.	EMS Project Team	12
17	EMS manual	Updated SP-17-1.	EMS Project Team	15
		Edited references with new title for El 15 and 17. Clarified timing for Management Review in step #1, SP-17-1.	EMS Project Team	15
		Updated SP-17-1 to reflect actual procedure.	EMS Project Team	none
		Clarified Reference section. Added schedule graphic, SD-17-1.	EMS Project Team	12

Element Number	Location	Effective Change	Responsible Staff	Other Effected Elements
Glossary of Key Terms	EMS manual	Added new definitions for WTD staff, WTD Management and other Teams.	EMS Project Team	all
		Added new definitions for Code of G.P., Corrective act., EMS indicators, environ. impacts, improvements, maintenance work request, outcomes matter and the 4 outcomes.	EMS Project Team	all
		Added acronyms for documentation terminology, clarified legal and "other" requirements, added WTD groups.	EMS Project Team, TARR Team	all
		Added new definitions for findings and WTD mission statement. Changed Regulatory Team to Regulatory Coordinators.	EMS Project Team, TARR Team	all
		Added new definitions for R&R, Support Documents, EMS Manual, SMART, timely and complete manner, and EMS files. Changed WTD mission to policy statement.	EMS Project Team, TARR Team	all
List of References	EMS manual	Added more references and included more in Manual.	EMS Project Team	all
		Modified and updated references.	EMS Project Team	all
		Added new reference to Element 6	TARR Team	5
		Edited references to reflect changes from other elements.	EMS Project Team	1, 7, 9, 14
		Edited references to reflect changes from other elements.	EMS Project Team	6, 12, 14, 15, 17
2	Support docs	Created Table 2 to cross-reference KC policy to Code of Good Practice.	EMS Project Team	none
		Clarified Table 2 to more accurately cross-reference KC policy to NBP Code of Good Practice, added references.	EMS Project Team	all
3	Support docs	Created Table 3-B, Cross Reference of CCPs, OCs and SOPs to National Manual of Good Practice.	EMS Project Team	10, 13
		Updated Table 3-A, moved Thickening in front of Anaerobic Digestion pg 3. On pg 4, Dewatering, deleted Sludge Feed under M&M parameters. Clarified audit findings, pg 6, Biosolids Land Application Operations, under required log/report and added research under Operational Controls. Deleted Fertilizer Rule pg 7, EQ product under related permit/requir. Added call in phone numbers, pg 7, Odor Control Management under Operational Controls. Updated Table 3B.		
		Modified last column Table 3A to distinguish between legal and "other" requirements, added references. Updated Table 3B to new version of Manual of Good Practice.	EMS Project Team	all

Element Number	Location	Effective Change	Responsible Staff	Other Effected Elements
3	Support docs	Edited page 1 to change Spill Manual to Overflow Manual. Deleted note on page 8 and replaced it with a List of Acronyms.	EMS Project Team	all
		Refined Table 3-A to clarify different CCPs and OCs for each treatment plant. Convert from belt filter press to centrifuge at SP. Addition of research activities.	EMS Project Team	10, 13
		Clarified biosolids research, relocated septage from IW to STP in both Table 3A and 3B.	EMS Project Team, TARR Team	10, 13
4	Support docs	Updated Table 4 with new dates, permit no. and contact person. Updated Table 4A with new expiration dates and contact person.	TARR Team	none
		Updated Table 4 with new dates, permit no., contact persons & KC internal audits. Updated Table 4A to change expiration date to start date so easier to know which extension we are under. Add Table 4B since activities involve whole Biosolids Value Chain.	TARR Team	3
		Edited Table 4 to only include legal requirements, updated dates, added references. Updated Table 4A and 4B accordingly.	EMS Project Team, TARR Team	3, 10, 13
		Updated Table 4 with important dates and required submittals. Edited Table 4A to add if contract extensions completed.	EMS Project Team, TARR Team	3, 10, 13
		Updated Table 4 with important dates and permit numbers. Edited Table 4A to update contract extension dates.	EMS Project Team, TARR Team	3
		Updated Table 4 with expiration dates and permit numbers.	TARR Team	3
5	Support docs	Updated Table 5 with completion dates and to clarify person responsible on Goal #3.	EMS Project Team	none
		Updated Table 5 for 2002 with completion dates as of 3/03. Created Table 5 for 2003 with carry over objectives and milestones from 2002 and new ones for 2003.		
		Updated Table 5 for 2003 with interim status & completion dates. Created Effectiveness Report SR-5-2 for 2002.	EMS Project Team	15
		Inserted completion dates for 2003 G&O. Revised new G&O for 2004, modified last column to itemize integration of other elements, potential environmental impacts and Outcomes.	EMS Project Team, TARR Team	all
		Updated Table 5 to make objectives specific and interim status current. Added 4th goal.	EMS Project Team, TARR Team	all
		Updated Table 5 with completion dates.	EMS Project Team, TARR Team	all

Element Number	Location	Effective Change	Responsible Staff	Other Effected Elements
5	Support docs	'Updated Table 5 for 2005 with current objectives & milestone dates.	EMS Project Team, TARR Team	all
6	Support docs	Updated Table 6 with completion dates.	EMS Project Team	none
		Updated Table 6 for 2003 Action Plan.		
		Updated Table 6 for 2003 with interim status & completion dates. Created Effectiveness Report SR-6-1 for 2002.	EMS Project Team	9, 15
		Updated Action Plan for 2004.	EMS Project Team, TARR Team	5, 9
		Updated Action Plan for 2004/05.	EMS Project Team, TARR Team	9
		Totally revised Table 6 to focus on public participation in 3rd party audits.	EMS Project Team	9
7	Support docs	Updated Table 7 with first quarter tracking.	EMS Project Team	all
		Updated Table 7 with third and fourth quarter tracking. Created Table 7A with break-out of all responsibilities for each group or team.		
		Updated Table 7A-ems and 7A-tarr to add Element 2, policy, as responsibility for these groups. Updated Table 7 with 4th quarter tracking and changed name.	EMS Project Team	2, 8
		Updated Table 7, modified and added references to Table 7A.	EMS Project Team, TARR Team	all
		Updated Table 7A-WTD mngt to reflect changes to other elements and to match SD-7-1.	EMS Project Team	all
		Edited Table 7A-reg to change Regulatory Team to Regulatory Coordinators.	EMS Project Team	all
		Updated Table 7 with fourth quarter tracking.		
		Eliminated Table 7 since it contains the same information as the Record of Revisions and SF-12-2.	EMS Project Team	all
9	Support docs	Updated Table 9 with dates completed. Updated Table 9A with new Person Responsible, comments and completion dates. Updated Plan 9B, Goal: 1st paragraph to include "and for WTD Management". Updated Table 9C with minor corrections.	EMS Project Team, TARR Team	none
		Changed Table numbers to correspond to associated Communication Plan. Updated Plan 9A, Table 9A, Plan 9B and Table 9B for 2003. Added videos to Table 9C. Update 9D with new participants. Created Form 9E, Comm Record. Added new Communication flow charts Tables 9E - 9H.		

Element Number	Location	Effective Change	Responsible Staff	Other Effected Elements
9	Support docs	Updated Table 9A and 9B for 2003 with interim status & completion dates. Created Effectiveness Reports SR-9-1 and SR-9-2 for 2002.		6, 15
		Inserted completion dates for 2003 plans. Updated Plans and tables for 9A and 9B with 2004 tasks. Modified Table 9D to reflect new participants.	EMS Project Team, TARR Team	6, 7
		Updated Table 9A and 9B with completion dates.	EMS Project Team, TARR Team	6
		Added Regulatory Coordinators meeting to Table 9D.		4, 6, 7
		Updated Plans and tables for 9A and 9B with 2005 tasks. Edited Table 9C with new brochures, issue dates and websites. Updated Table 9D to reflect current purposes.	TARR Team	
10	Support docs	Updated Table 10 under TARR section with new doc numbers, issue dates and person responsible.	TARR Team	3, 13
		Updated Table 10 with new doc numbers and dates under all sections. Added TARR Biosolids Procedures Manual and deleted some old "Outside Reference Materials" under TARR section.	EMS Project Team, TARR Team	
		Added references to Table 10 and distinguished between legal and other requirements.	EMS Project Team	3, 4, 13
		Edited person resonsible in Table 10 to be title as opposed to name.	EMS Project Team	3, 13
		Updated Table 10 to match changes in Table 3A.	EMS Project Team	3, 13
12	Support docs	Updated Table 13 under TARR section with person responsible.	TARR Team	3, 10
		Updated Table 13, added Procedures Manual and deleted Vehicle Maintenance log from IW section. Changed server from Aqua to wtddata for Form and File location in all sections. Added internal audit checklists for projects under TARR section. Changed person responsible for Biosolids distribution under TARR section. Added database system under WP section.	EMS Project Team	3, 10
13	Support docs	Added references to Table 13, added two more items.	EMS Project Team	3, 4, 10
		Edited person resonsible in Table 13 to be title as opposed to name.	EMS Project Team	3, 10
		Updated Table 13 to match changes in Table 3A.	EMS Project Team	3, 10

Element Number	Location	Effective Change	Responsible Staff	Other Effected Elements
15	Support docs	Updated Table 15 with dates revisions sent out.	EMS Project Team	none
		Updated Table 15 with dates revisions sent out.	EMS Project Team	none
		Updated Table 15 and 15A.	EMS Project Team	none
		Updated Table 15.	EMS Project Team	none
		Updated Table 15 and 15A.	EMS Project Team	none
		Updated Table 15 and 15A.	EMS Project Team	none
		Updated Table 15 with dates revisions sent out.	EMS Project Team	3, 10
List of Acronyms	Support docs	Consolidated acronyms into new support document table.	EMS Project Team	all
		Added definition for nutrients.	EMS Project Team	all
		Added definition for EWR and WR	EMS Project Team	all

ELEMENT 13: MONITORING AND MEASUREMENT

Background

King County Wastewater Treatment Division (WTD) has established monitoring, measurement, testing and inspection activities at critical control points (Element 3) to assure that biosolids activities are in compliance with legal requirements (Element 4), as well as other voluntarily adopted requirements. Procedure SP-13-1 describes how the list of monitoring and measurement SOPs will be kept up-to-date. Table 3-A includes the up-to-date list of all monitoring and measurement SOPs and schedules while Table 13 itemizes all the resulting logs, reports and records.

EMS PROCEDURE SP-13-1: MONITORING AND MEASUREMENT

Purpose

To maintain an up-to-date list of monitoring & measurement schedules, including SOPs for sampling, testing, inspection, calibration and tracking.

Scope

The SOPs and schedules for monitoring and measurement cover activities at all critical control points throughout the biosolids value chain. Results of monitoring and measurement activities shall be incorporated and/or cross-referenced into other EMS elements, as applicable.

Definitions: See Glossary of Key Terms

References:

- EMS Manual:
  - Element 2: Biosolids Policy
  - SP-3-1: Updating Critical Control Points
  - SP-4-1: Identifying and Tracking Legal Requirements
  - SP-10-1: Identifying and Updating Operational Controls and the Associated SOPs
  - SP-12-3: Management of Change Procedure
- Support Documentation:
  - Table 3-A: Critical Control Points and Operational Controls for Biosolids Value Chain
  - Table 3-B: Consistency of Critical Control Points, Operational Controls and SOPs to the National Manual of Good Practice.
  - Table 4: Tracking for Biosolids Legal Requirements
  - Table 10: Level 3 Master List of SOP Documents throughout the Biosolids Value Chain
  - Table 13: Level 4 Master List of Logs, Reports and Records throughout the Biosolids Value Chain.

- Other:
  - Washington Department of Ecology Biosolids Management Guidelines (BMGs)
  - NBP National Manual of Good Practice for Biosolids, June 2003.
  - Land application plans/operation plans for all end use sites.
  - Contracts for all end use sites.

Responsible Persons:

- EMS Coordinator
- EMS Project Team
- WTD Management

Procedure SP-13-1-2:

1. The EMS Coordinator will communicate to the Section Managers and/or their appointed designee, the need to review and update, if necessary, the list of monitoring and measurement SOPs applicable to the critical control points (Element 3) identified throughout the biosolids value chain. This review shall be performed at least annually.

2. The Section Manager and/or their appointed designee, shall review the current list of monitoring and measurement SOPs (Table 3A) under their jurisdiction and identify additions or deletions from the list along with associated changes to monitoring and measurement reports and records (Table 13) and operational control SOPs (Table 10).

3. Following review of the monitoring and measurement SOPs, the Section Manager and/or their appointed designee, will propose changes.

4. The EMS project team shall review and compile the changes to the list. When needed, the project team will facilitate communication between business teams/work groups.

5. The EMS Coordinator shall initiate the Management of Change Procedure (SP-12-3) to consider and complete required updates in operational control SOPs, monitoring and measurement reports and records and other EMS documents, as required.

6. The Section Managers, and/or their appointed designees, shall modify the SOPs or O&M manuals based on these changes, if necessary. Implementation of the changes will begin after all affected staff and contractors are trained.

ELEMENT 14: NONCONFORMANCES: PREVENTIVE & CORRECTIVE ACTIONS

Background

King County Wastewater Treatment Division (WTD) has established corrective action procedures to correct nonconformances (findings) with Environmental Management System (EMS) requirements, discovered either in the course of day-to-day biosolids activities or through a formal EMS audit process. Besides nonconformances, necessary/desirable improvements or changes in procedures or practices may be discovered which require preventive/corrective action.

There are two types of structured, formal audit processes that are interrelated. WTD has established its own internal EMS Audit Plan and Protocols to periodically self-assess the performance of the EMS for biosolids (Element 16). WTD verifies conformance with the *EMS Elements* by participating in the National Biosolids Partnership (NBP) third party EMS verification audit.

For all types of preventive/corrective actions, an individual or team of individuals is assigned to follow-up on the incident. They are provided with the necessary resources and support to identify the root cause of the nonconformance, or why a correction or improvement is necessary, and to develop and implement the necessary corrective action to prevent a recurrence.

For findings or improvements discovered through day-to-day operations, the corrective action responsibility is assigned to specific employee(s) with a target timeframe for correction. A formal preventive/corrective action work plan may or may not be required.

For major or minor nonconformances discovered through a formal EMS audit process (internal or 3rd party), the assigned responsible person/lead for the corrective action develops a preventive/corrective action plan with assigned individuals, work tasks, schedule and milestones, as necessary.

EMS PROCEDURE SP 14-1: NONCONFORMANCES (FINDINGS) FOR DAY-TO-DAY ACTIVITIES

Purpose
To direct and document the successful completion of preventive/corrective action for EMS nonconformances (findings) or necessary/desirable improvements in procedures and practices.

Scope
This preventive/corrective action procedure covers EMS nonconformances (findings) or necessary/desirable improvements discovered through day-to-day, operational activities.

Definitions: See Glossary of Key Terms

References:

- EMS Manual:
  - Element 2: Biosolids Policy
  - SP-12-3: Management of Change Procedure
  - SF-14-1: Corrective Action Record
  - SD-14-1: Corrective Action Flow Chart
  - SF-14-2: Operational Findings Tracking Log
  - SF-14-3: Tracking for Preventive/Corrective Action Plan
- Other:
  - Maintenance Work Request

Responsible Persons:

- EMS Coordinator
- EMS Project Team
- WTD Management

Procedure SP-14-1-3: (This procedure is also outlined in the following flow chart, SD-14-1)

1. When a nonconformance, regulatory noncompliance or necessary/desirable improvement in procedures or practices is discovered during day-to-day operations at the treatment plants, a Maintenance Work Request shall be filed by the supervisor and/or responsible staff within the biosolids value chain.

2. When a nonconformance, regulatory noncompliance or necessary/desirable improvement in procedures or practices is discovered during day-to-day operations within the other sections of the biosolids value chain, a Corrective Action Record (SF-14-1) shall be filed by the supervisor and/or responsible staff. A copy shall also be sent to the EMS Coordinator and logged into the Operational Findings Tracking Log (SF-14-2).

3. The supervisor and/or responsible person(s) shall be appointed by the EMS Coordinator with approval by WTD Management, as required. They shall investigate the cause(s) of the nonconformance or why a correction or improvement is necessary.

4. The responsible person shall identify the cause(s) and institute appropriate changes along with a corrective and/or preventive action plan, if necessary, based on severity and environmental impacts of the nonconformance or improvement. These plans will be tracked on SF-14-3, Tracking for Preventive/Corrective Action Plan.

5. The responsible person(s) shall work with all affected parties to test the changes to ensure they are working as intended. If the changes are not working then return to step #4. If they are working then continue to step #6.

6. The responsible person(s) shall update their supervisor and/or lead staff on progress towards completion of the corrective action/improvement activities.

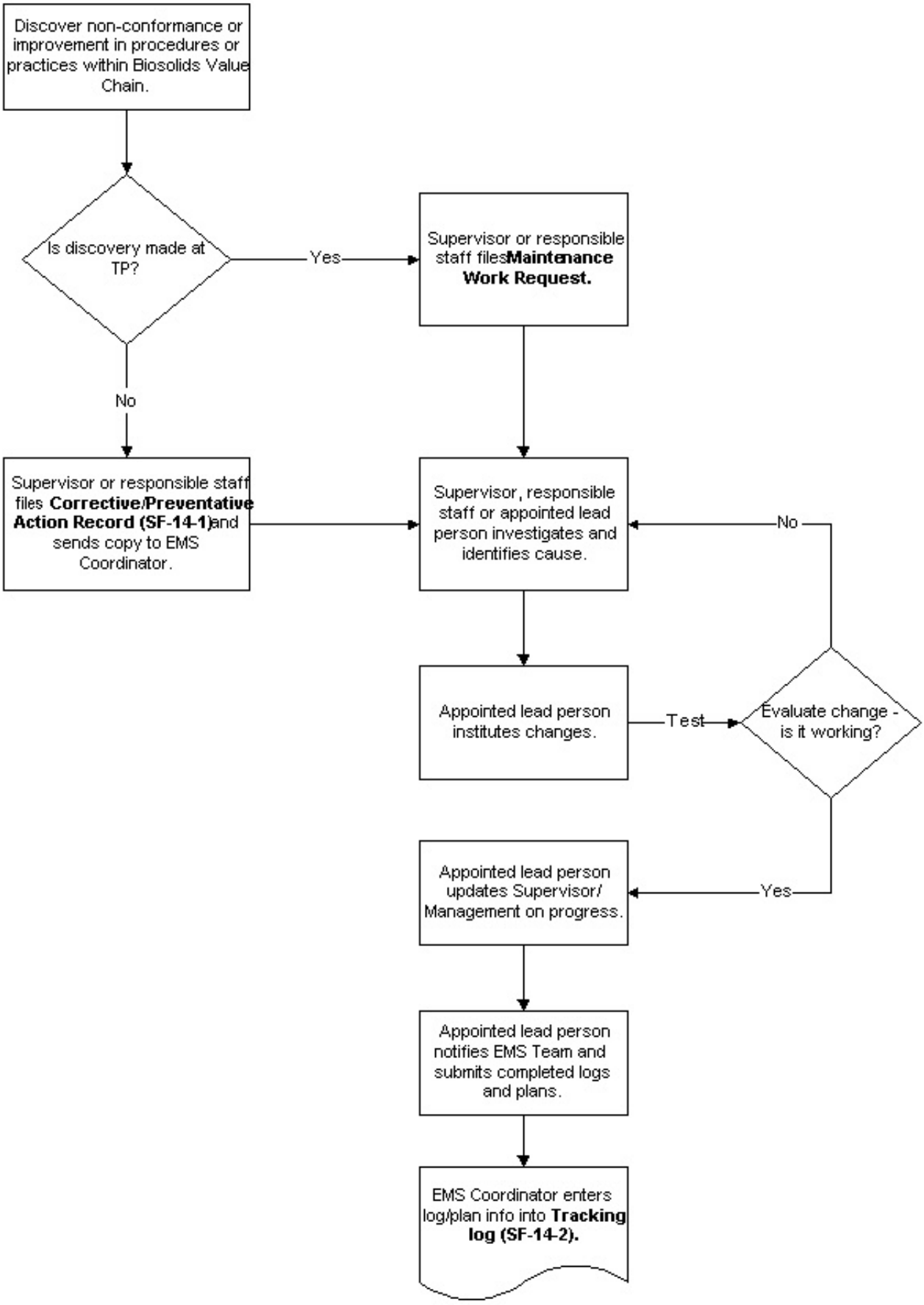
7. The responsible person(s) shall notify their EMS Project Team representative or the EMS Coordinator of these day-to-day nonconformances/improvements and submit all completed logs and plans to them at least quarterly. A Maintenance Work Request is handled separately at the respective treatment plants.

8. The EMS Coordinator or designated person(s) shall maintain the Operational Findings Tracking Log (SF-14-2).

9. The EMS Coordinator shall initiate the Management of Change Procedure (SP-12-3) to consider and complete required updates to related EMS documents, as required.

SD-14-1: Corrective Action Flow Chart

3/31/2005



SF-14-1-3 : Corrective Action Record

Corrective Action Record #_____ **Routing:** _____ _____ _____ _____	**Requester:** **Name:** _____ **Phone:** _____ **Date Completed Step 1:** _____ **Sign:**_____ **Major, Minor, or Observation**	**Responsible Person(s):** **Name:** _____ **Name:** _____ **Phone:** _____ **Completed: Step 2:** _____ **Step 3:** _____ **Step 4:** _____ **Step 5:** _____ **Step 6:** _____
	Priority: HIGH, MEDIUM, or LOW	**Target Completion Date:** _____
(1) Summary of Finding:		
(2) Most Likely Cause(s):		
(3) Suggested Solution(s):		
(4) Summary of Completed Corrective Action Confirming Effectiveness:		
(5) Communicated the Solution to Appropriate Parties:		
(6) Recommended Preventive Actions:		
(7) Check Need for Management of Change:		
Steps 2 - 6 Completed By Responsible Person: _____ **Date Completed:** _____ **fax completed record to 206-684-2057**	**EMS Coordinator:** _____ **Date Received Form:** _____ **Date Step 7:** _____ **Date Logged:** _____	**If necessary, approval or review by Manager:** _____ **Date:** _____

SF-14-3-2: Tracking for Corrective/Preventive Action Plans

Record #	Prescribed Corrective/Preventive Measure	Task to be Done	Responsible Staff	Target Start Date	Target Completion Date	Actual Completion Date	Effectiv

SF-14-2-3: Operational Findings Tracking Log for SF-14-1 (Corrective Action Record)

Record #	Description of Finding	Type of Finding	Date Finding Discovered	Tracking Person	Date Record Filled Out	Interim Record Status	Date Record Closed Out

EMS PROCEDURE SP-14-2: MAJOR OR MINOR FORMAL AUDIT NONCONFORMANCES (FINDINGS)

Purpose
To direct and document the successful completion of corrective action for EMS nonconformances (findings) resulting from audits (internal or 3rd party).

Scope
This corrective action procedure covers major and minor nonconformances (findings) discovered through a structured, formal audit process.

Definitions: See Glossary of Key Terms

References:

- EMS Manual:
  - Element 2: Biosolids Policy
  - SP-12-3: Management of Change Procedure
  - SF-14-1: Corrective Action Record
  - SF-14-3: Tracking for Preventive/Corrective Action Plan
  - SF-14-4: Audit Findings Tracking Log
  - SD-14-2: Corrective Action Flow Chart – Audit Findings
  - SP-15-1: EMS Performance Report
  - SP-16-1: Internal EMS Audit Plan and findings
  - SP-17-1: Management Review
- EMS files:
  - SR-16-1: Internal EMS Audit Report
  - 3rd Party EMS Verification Audit findings

Responsible Persons:

- EMS Coordinator
- EMS Project Team
- WTD Management
- EMS Audit Team

Procedure SP-14-2-3: (This procedure is also outlined in the following flow chart, SD-14-2)

1. The EMS Coordinator and WTD Management shall review the audit findings from internal and/or third party EMS audits. Audit findings shall differentiate between major and minor nonconformances versus opportunities for improvement.

2. Nonconformances shall be assigned to a supervisor and/or responsible staff appointed by the EMS Coordinator with approval by WTD Management, as required. The responsible person shall ensure that a detailed Corrective Action Record (SF-14-1) is prepared. A copy shall also be sent to the EMS Coordinator and logged into the Audit Findings Tracking Log (SF-14-4).

3. The responsible person shall identify root cause(s) and design and implement the necessary corrective action.

4. The responsible person shall recommend interim solutions, if appropriate. A corrective and/or preventive action plan (including capital expenses and engineering) may be necessary, based on severity and environmental impacts of the nonconformance or improvement. These plans will be tracked on SF-14-3, Tracking for Preventive/Corrective Action Plan.

5. The responsible person shall ensure that each item in the Corrective Action Record (SF-14-1) is completed. WTD Management shall be kept appraised of all corrective actions and any significant deviations from the established completion dates.

6. The responsible person(s) shall work with all affected parties to test the changes to ensure they are working as intended. If the changes are not working then return to step #3. If they are working then continue to step #7.

7. The responsible person shall submit all completed plans and records to the EMS Coordinator at least quarterly.

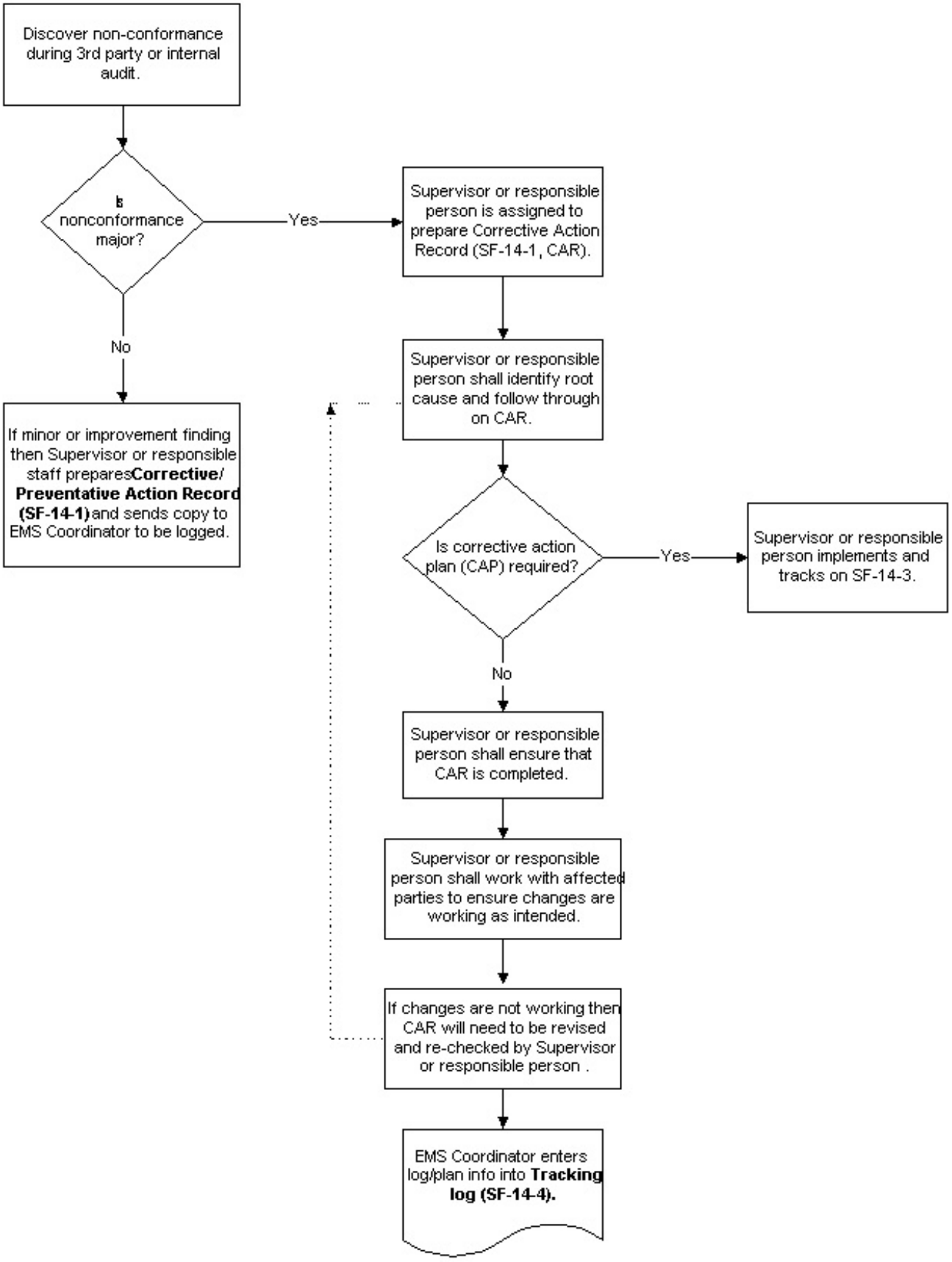
8. The EMS Coordinator or designated person(s) shall maintain the Audit Findings Tracking Log (SF-14-4).

9. The EMS Coordinator shall prepare an annual summary of corrective actions for the Annual Management Review (Element 17) and inclusion in the Biosolids EMS Performance Report (Element 15).

10. The EMS Coordinator shall initiate the Management of Change Procedure (SP-12-3) to consider and complete required updates to related EMS documents, as required.

SD-14-2: Corrective Action Flow Chart - Audit Findings

6/22/2005



SF-14-4-6: Audit Findings Tracking Log for SF-14-1 (Corrective Action Record)

Record #	Description of Finding	Type of Finding	Tracking Person	Date Record Filled Out	Interim Record Status	Date Reco Closed O

ELEMENT 15: EMS Performance Report

Background

King County Wastewater Treatment Division (WTD) has established a process to develop their Biosolids Environmental Management System (EMS) Performance Report. This report provides a summary of biosolids monitoring and measurement results, key outcomes, public participation and communication activities, compliance performance, progress towards goals and objectives and a summary of the internal and third party verification audit results.

Hard copies of this report can be obtained from WTD. The Biosolids EMS Performance Report is available as a published report on the WTD web page.

EMS PROCEDURE 15-1: BIOSOLIDS EMS PERFORMANCE REPORT

Purpose

To define the process for timely completion of the Biosolids EMS Performance Report.

Scope

The procedure covers the compilation of performance information and the process for drafting and completing the report. The report shall contain appropriate summaries of monitoring, measurements, and other results that demonstrate the performance of the EMS program relative to its goals, objectives and legal requirements.

Definitions: See Glossary of Key Terms

References:

- EMS Manual:
  - Element 2: Biosolids Policy
  - SP-6-1: Public Participation in Planning
  - SP-9-1: Communication Plans
  - SP-9-3: Responding to Inquiries, Requests and Comments
  - SP-12-1: Document Management
  - SP-13-1: Monitoring and Measurement SOPs and Schedules
  - SP-13-2: Monitoring Progress Toward Goals and Objectives for Continual Improvement
  - SP-14-2: Major and Minor Formal Audit Nonconformances
  - SD-15-1: EMS Performance Report Schedule of Events
  - SP-16-1: Internal EMS Audit Plan
  - SP-17-1: Management Review

- Support documentation:
  - Table 4: Tracking for Biosolids Legal Requirements
  - Table 5: Action Plan for Element 5 Goals & Objectives
  - Table 15: Distribution List for EMS Manual
  - Table 15A: Distribution List for Annual Biosolids EMS Performance Report
- EMS files:
  - 3rd Party EMS Verification Audit Findings
  - SR-15-1: Biosolids EMS Performance Report

Responsible Persons:

- EMS Coordinator
- EMS Project Team
- WTD Management

Procedure SP-15-1-3: (This procedure is also outlined in the following graphic, SD-15-1)

1. The EMS Coordinator and EMS Project team shall establish (with approval by WTD Management) the design, content and methods for distributing the Biosolids EMS Performance Report (SR-15-1) to staff, customers and other interested parties.

2. The report shall include a summary of compliance performance (Table 4), progress toward goals and objectives (Table 5), actions on inquiries from interested parties (SP-9-3), the results of the internal (Element 16) and third party EMS audits and other appropriate items to demonstrate EMS performance.

3. After receipt of the 3rd party final audit report, the EMS Coordinator shall request information needed to complete the performance report. The request shall include all information on key events and outcomes that are noteworthy and last about 14 days.

4. The initial draft of the Biosolids EMS Performance Report shall be developed by the EMS Coordinator and the EMS Project team. The draft shall be completed within 45 days after #3 above is done and circulated for 2-week review by WTD Management and other appropriate supervisors, staff, customers and interested parties.

5. The EMS Coordinator and EMS Project team shall make arrangements for publishing of the written report and develop a mailing list for distribution (Table 15A).

6. The Biosolids EMS Performance Report shall be finalized and available as a published document and on the WTD web page within 30 days after #4 above is completed.

7. Copies of the published Biosolids EMS Performance Reports shall be available at the WTD office and other biosolids value chain facilities (See Element 1 for facility addresses).

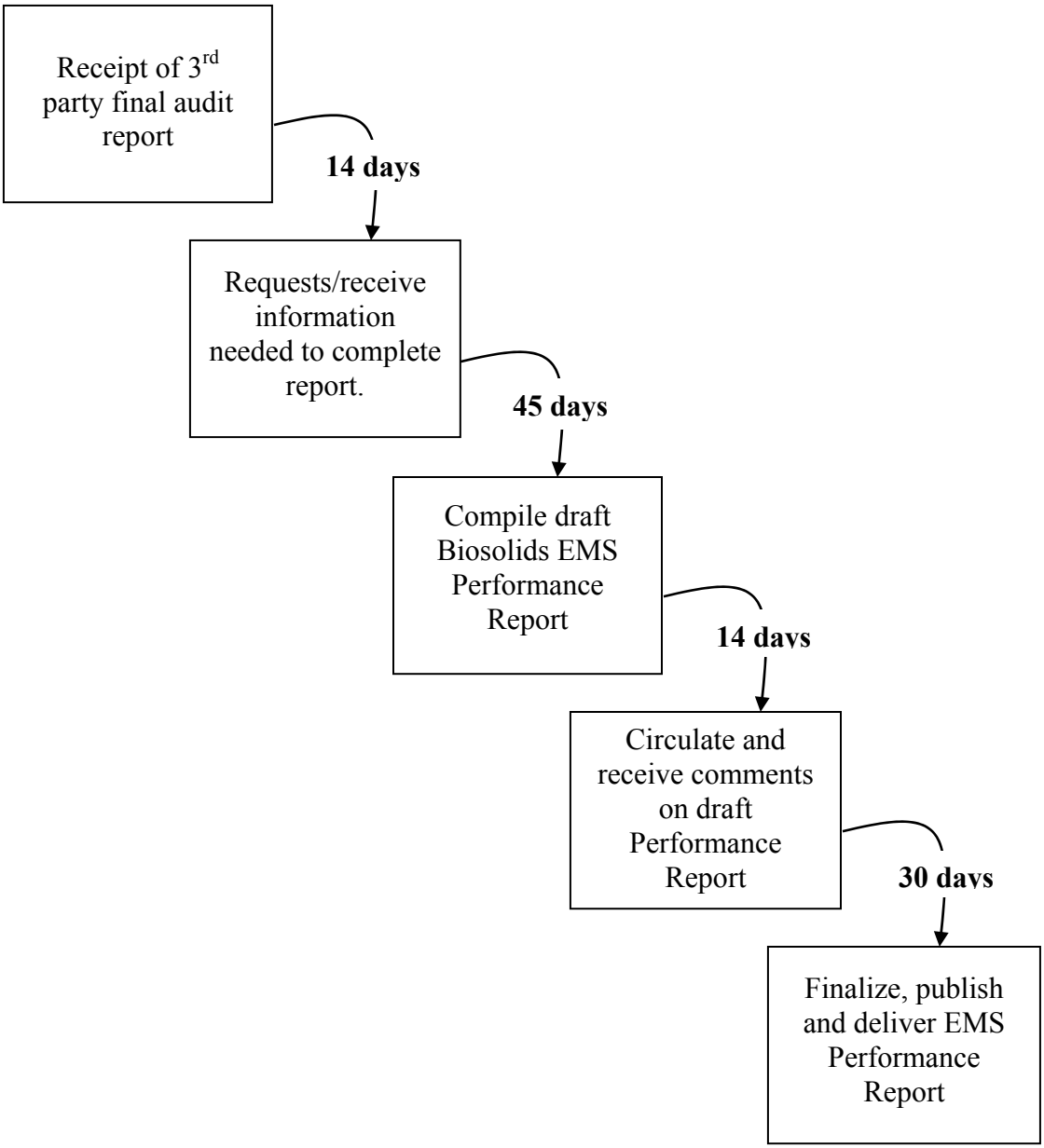
8. Any comments or inquiries by staff or the public (SP-9-3) concerning the Biosolids EMS Performance Report shall be handled in a timely manner.

9. Archived copies of the Biosolids EMS Performance Reports shall be maintained by the EMS Coordinator or designated staff (SP-12-1).

10. The EMS Coordinator shall utilize the Biosolids EMS Performance Report during the management review with WTD Management (Element 17) to evaluate the EMS continual improvement program and make recommendations for the next cycle.

SD-15-1: EMS Performance Report Schedule of Events

Total time elapsed: 14 weeks or less



ELEMENT 16: INTERNAL EMS AUDIT PLAN

Background

The King County Wastewater Treatment Division (WTD) is one of the charter organizations working with the National Biosolids Partnership (NBP) to develop an Environmental Management System (EMS) for biosolids. A biosolids EMS includes both a third-party audit conducted by an independent auditor under contract to the NBP and internal audits conducted by the agency (or outside consultant or other outside party) to determine whether the agency's EMS meets the criteria set by the NBP. Internal audits may also substitute for interim, third-party audits as prescribed in the NBP's *Third Party Verification Auditor Guidance*.

WTD's internal EMS Audit Plan is designed to determine systematically whether the biosolids EMS is effectively meeting its biosolids policy (Element 2), goals and objectives (Element 5) and other EMS requirements. It identifies the audit team members, requirements for internal auditor training, and audit procedures, schedule, and report content.

EMS PROCEDURE SP-16-1: INTERNAL EMS AUDIT PLAN

Purpose

To periodically analyze the biosolids EMS to determine whether the WTD Biosolids Value Chain is effectively meeting its biosolids policy, EMS program requirements, and EMS goals and objectives.

Scope

The EMS Audit program will review all 17 elements in the WTD biosolids EMS. It will be conducted on a revolving schedule so that all 17 elements are audited internally at least once in between the third-party verification audits administered by the NBP.

Definitions: See Glossary of Key Terms

References:

- EMS Manual:
  - All elements
- EMS files:
  - Biosolids EMS Status Review checklist
  - SR-16-1: Internal EMS Audit Report

- Other:
  - *Third Party Verification Auditor Guidance* prepared by The National Biosolids Partnership's Auditor Guidance Development Group and EMS Program Advisory Group, November 2002.

Responsible Persons:

- EMS Coordinator
- EMS Project Team
- WTD Management
- EMS Audit Team:
  - Environmental Compliance Staff
  - Independent Third-Party Contractor, WTD staff, or other outside party

Procedure SP-16-1-3:

1. The EMS Audit Team, composed of members who are trained in the NBP's EMS structure and requirements, shall design and carry out the Internal EMS Audit.

2. The EMS Audit Team shall use the 17 EMS elements and a Biosolids EMS Status Review Checklist as a guide in conducting the internal audit to ensure that all parts of the EMS are in place and functioning well.

3. The internal audit shall include detailed review of documents and records, employee interviews (including contractors), wastewater treatment plant observations, and biosolids application site observations as necessary.

4. The EMS Audit Team shall use and/or develop standard procedures, forms, and working documents such as checklists, scope of work, schedule and audit report that shall be used during the auditing process. These procedures and forms shall parallel the procedures and forms used by third-party auditors, as available in guidance manuals and other NBP resources.

5. The EMS Audit Team shall conduct internal audits, either formal or informal. **Formal** internal audits are required by the NBP, are usually performed in years when a 3rd party audit is not required, and include a report submittal to the 3rd party auditor. **Informal** internal audits are in-house checks that are usually conducted in preparation for a 3rd party audit or as needed. They are not required by the NPB and do not include a report submittal to the 3rd party auditor. Internal audits are conducted on a 12-month cycle, except in years when a 3rd party audit is required. However the timing may vary based on previous audit findings, system changes or needs and the 3rd party interim audit schedule.

6. The internal EMS audits shall look at all 17 EMS elements, or a portion of them, based on the 3rd party interim audit scope, previous audit findings, and system changes or needs.

7. The EMS Audit Team shall itemize all findings in the Audit Report (SR-16-1) and shall describe and classify any nonconformances as "major" or "minor" (Element 14).

8. The EMS Project Team shall develop a corrective action record (Element 14) to address each nonconformance identified by the internal audit.

9. The EMS Coordinator shall provide results of the audit to WTD Management, particularly during the annual management review (Element 17).

ELEMENT 17: Management Review

Background

King County Wastewater Treatment Division (WTD) has established a procedure for the management review of its biosolids activities and environmental management system (EMS) performance.

The Management Review has two parts: Part 1 addresses how well the EMS is performing; whether WTD is meeting its Biosolids Policy Commitments; whether it is making progress toward its goals and objectives; how well its public participation and communication program are functioning; the actual performance of the biosolids activities (compliance, technical and financial); the robustness of the EMS as determined through the internal EMS Audit and Corrective Action Plan; and the outcomes the EMS is producing.

Part 2 will look to the future and address whether the County should "stay the course" or make major adjustments to its policies, procedures and practices for biosolids activities. Changes could include adjustments to policies and long-term goals as a consequence of both internal and external factors. If things appear to be working well, the current EMS can establish the frame of reference and basis for requesting resources to address the next set of performance improvement objectives (Element 5).

EMS PROCEDURE SP-17-1: MANAGEMENT REVIEW

Purpose

To define the process to prepare for, conduct and follow-up on the management review which provides a strategic look at the biosolids activities and EMS performance.

Scope

The management review covers all biosolids activities within the 17 elements of the EMS, as well as external developments in policy, legal requirements, public opinion, technology and regional economic development that have a bearing on WTD's biosolids program.

Definitions: See Glossary of Key Terms

References:

- The management review utilizes performance information from all the EMS elements and audit findings.

- EMS Manual:
  - SP-15-1: Biosolids EMS Performance Report
  - SD-17-1: Management Review Schedule of Events
- Support Documents:
  - Table 5: Action Plan for Element 5 Goals and Objectives
  - Table 17: Action Plan for Management Review Decisions
- EMS files:
  - SR-17-1: Biosolids EMS Management Briefing Document

Responsible Persons:

- EMS Coordinator
- EMS Project Team
- WTD Management

Procedure SP-17-1-4: (This procedure is also outlined in the following graphic, SD-17-1)

1. After the Biosolids EMS Performance Report (SP-15-1) has been prepared and distributed, the EMS Coordinator shall schedule the biosolids EMS management review with WTD Management.

2. Within two weeks after the Performance Report is published, the EMS Coordinator shall obtain input for the management review from the EMS Project Team, WTD Section managers and supervisors, other EMS element teams and interested parties. They will be given at least two weeks to submit comments.

3. Within two weeks after comments are submitted, the EMS Coordinator shall work with the EMS Project team to compile all input into a draft Biosolids EMS Management Briefing Document (SR-17-1) which shall cover the following topics to address the general issue of *(How are we doing?)*:

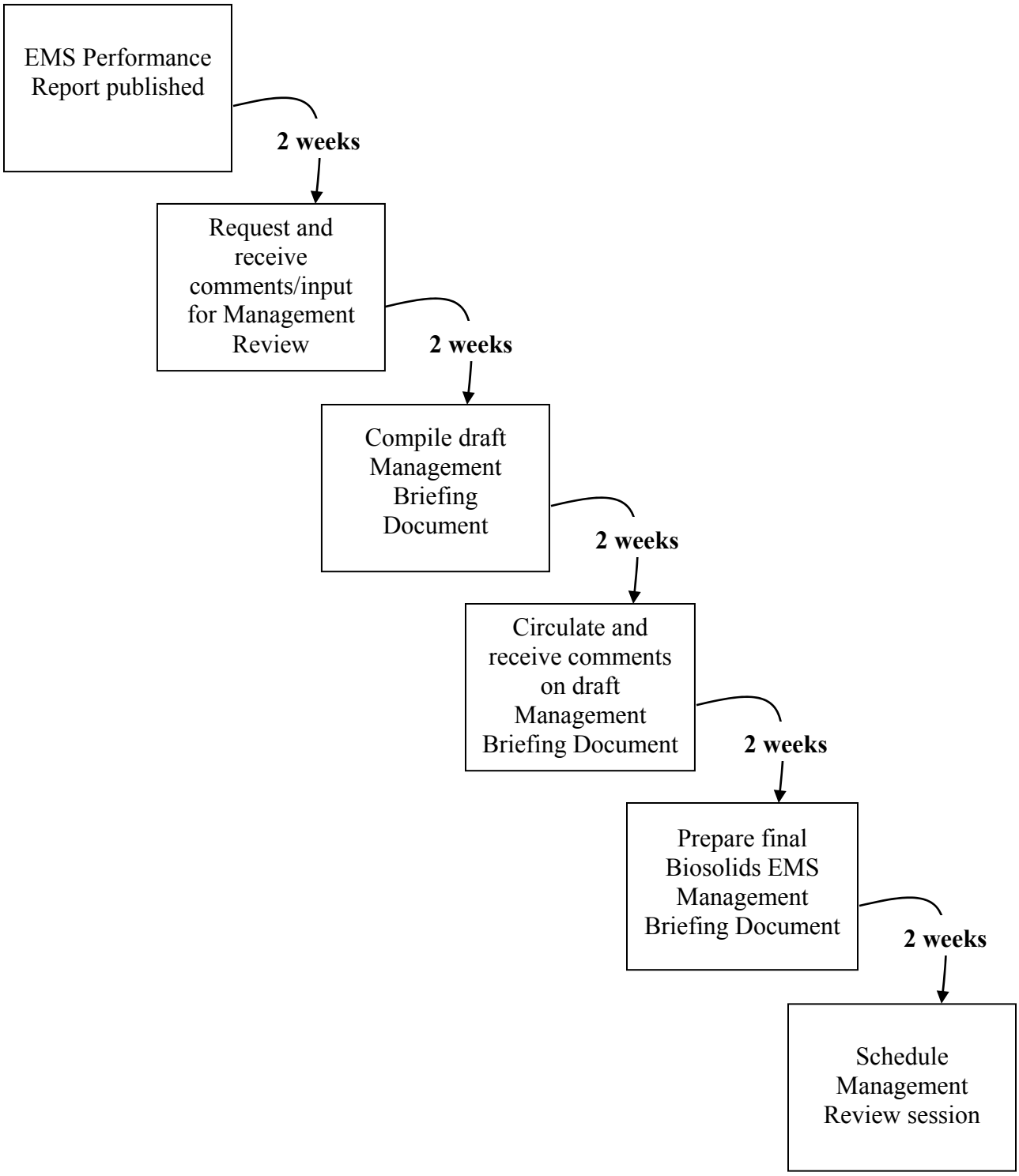
- Overall EMS robustness and effectiveness based on Monitoring and Measurement (Element 13), Corrective Action (Element 14), Performance Report findings (Element 15) and internal audit findings (Element 16)
- Progress/status of public support/acceptance (Element 6)
- Adherence to policy commitments and Code of Good Practice (Element 2)
- Progress toward goals and objectives (Element 5)
- National and regional legal requirements pertaining to biosolids activities (Element 4).

4. The EMS Project team shall circulate the draft Biosolids EMS Management Briefing Document for two weeks to appropriate staff, customers and other interested parties for review and comment.

5. Within two weeks after comments are submitted, the EMS Project team shall incorporate comments and prepare the final Biosolids EMS Management Briefing Document.

6. The final Biosolids EMS Management Briefing Document shall also include a forward looking set of recommendations and/or discussion points, including the next installment of short-term objectives *(Where do we want to go?)*.

7. The Management review session shall be scheduled to discuss and analyze a set of action items based on both the past year's performance and the future direction we want to pursue. After decisions are finalized, action plans (Table 17) shall be developed by the EMS Project team to reflect specific new goals and objectives (may need updates to Table 5) *(How do we get there?)*.

SD-17-1: Management Review Schedule of Events

Total time elapsed: 10 weeks