BEFORE THE BOARD OF COUNTY COMMISSIONERS OF LANE COUNTY, OREGON

ORDER NO. 14-01-07-10  IN THE MATTER OF AUTHORIZING AN
INTERGOVERNMENTAL AGREEMENT WITH
THE OREGON DEPARTMENT OF
ENVIRONMENTAL QUALITY FOR
ENVIRONMENTAL COMPLIANCE ACTIVITIES
RELATING TO THE FORMER BETHEL-DANEBO
LANDFILL AND AUTHORIZING THE COUNTY
ADMINISTRATOR TO EXECUTE THE
AGREEMENT.

WHEREAS, Lane County owned and operated a municipal solid waste landfill from
1974 through 1977 known as the Bethel-Danebo Landfill; and

WHEREAS, Lane County sold the property containing the Bethel-Danebo Landfill
in 1978 to Lane Plywood; and

WHEREAS, the property was subsequently developed as the Pioneer Business
Park under ownership of Frontier Recovery, LCC; and

WHEREAS, methane migration from the former landfill presents a risk to public
safety and health on lots adjacent to the former landfill; and

WHEREAS, the Oregon Department of Environmental Quality has proposed a
Voluntary Agreement outlining environmental compliance activities to be performed by
Lane County.

NOW, THEREFORE, the Board of County Commissioners of Lane County ORDERS
as follows:
1. That an Intergovernmental Agreement is authorized with the Oregon Department
   of Environmental Quality for environmental compliance activities relating to the
   former Bethel-Danebo Landfill.
2. That the County Administrator is authorized to execute an agreement generally
   consistent with the version attached to this order.

Adopted this 7th day of January, 2014.

APPROVED AS TO FORM

Date 12-30-13 Lane County
OFFICE OF LEGAL COUNSEL

Chair, Lane County Board of Commissioner
VOLUNTARY AGREEMENT FOR
FOCUSED METHANE INVESTIGATION
DEQ NO. ECVC-LQVC-WR-13-03

BETWEEN: Lane County
AND: Oregon Department of Environmental Quality (DEQ)

EFFECTIVE DATE: When signed by all parties

ORS 190.110 permits a unit of local government and a state agency to enter into an agreement for the performance of authorized actions, such as this Voluntary Agreement for Focused Methane Investigation. ORS 465.210(1)(a) and 465.260(2) authorize DEQ to enter into an agreement authorizing Lane County to carry out activities investigating and remediating a release of a hazardous substance.

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Figure 1: Pioneer Business Park - Lot Map
Figure 2: 1965 Aerial Photo
Attachment A: Scope of Work
Attachment B: DEQ Billing Rates
I. RECITALS

A. Lane County is a "person" under ORS 465.200(21).

B. The Pioneer Business Park (also known as Former Bethel-Danebo Landfill Property or Lane Valley Plywood) is a "facility" under ORS 465.200(13). Pioneer Business Park occupies approximately 80 acres at W. 1st Avenue and Bertelsen Road, Eugene, Oregon. A vicinity map and a site map are included in Attachment A to this Agreement. Pioneer Business Park is the former site of the Lane Plywood, Inc. (Lane Plywood) mill facility and the former Bethel-Danebo landfill (BDL). The property has been redeveloped into a business park with 34 lots (Figure 1).

C. Prior to the industrial development of the site by Lane Plywood, the site was used as farmland. From 1953 until 1997, Lane Plywood operated the site as a plywood manufacturing facility. An aerial photo showing historical site structures and features of the former facility is shown in Figure 2.

According to Lane Plywood documents, the northeast quarter of the site was the first to be developed by Lane Plywood in 1953. The northwest quarter of the site was farmland until 1964. At that time, Zip-O-Log Veneer (Zip-O) developed the area and operated a veneer peeling facility and log pond. This facility operated until 1973, when Lane Plywood acquired the Zip-O facility. Lane Plywood filled the log pond and used that area as log deck. Lane Plywood operated the former Zip-O veneer facility until 1993 and added a second veneer plant in 1978 that was operated until 1990.

The southwest quarter of the site includes the former BDL. Prior to use as a landfill, the BDL area was a rock quarry that was developed in the 1960’s and operated until approximately 1970. From about 1970 to about 1974, the BDL was operated as a private landfill which accepted construction and demolition waste. From 1974 until 1977, Lane County operated the site as a public landfill for domestic municipal waste. From 1976 to 1977, the County also accepted commercial municipal waste. Lane Plywood procured this property in 1978, however, Lane Plywood did not conduct any processing activities in this area.

D. Methane migration from the former Bethel-Danebo landfill may represent a risk to public safety and health on Lots 6, 7, 8, and 26. This is based on the fact that methane was detected above the 5% LEL in vapor-monitoring points and monitoring wells on those lots. The April 21, 2011 Modification of Agreement between Lane County and Frontier Recovery LLC stipulates that Lane County shall be responsible for all monitoring of methane from the landfill, as requested by DEQ. Monitoring of methane from non-landfill sources is the responsibility of Frontier Recovery, LLC.

E. Lane County requests DEQ oversight of its investigation and cleanup activities and executed a voluntary Letter Agreement with DEQ on January 6, 2011.

G. DEQ considers the activities required by this Agreement to be necessary to protect public health, safety, and welfare and the environment.

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Lane County

DEQ No. ECVC-LQVC-WR-13-03
II. AGREEMENT

The parties agree as follows:

A. Work

1. **Focused Methane Investigation**
   To address the risks to public safety from methane from the former landfill, Lane County will perform a Focused Methane Investigation in accordance with the attached Work Plan (Attachment A). The Work Plan may be adjusted utilizing adaptive management based upon mutual agreement by both parties.

2. **Review**
   DEQ agrees to provide review, approval/disapproval, and oversight in accordance with the schedule set forth in the Work Plan, or as soon as thereafter practicable in the event staff resources or workload prevent compliance with the schedule. Any DEQ delay will correspondingly extend Lane County's schedule for a related deliverable or activity.

3. **Remedial Action Selection**
   Upon Lane County's completion of the Focused Methane Investigation, DEQ will approve or select a remedial action in accordance with ORS ch. 465 and OAR ch. 340 div. 122. Any agreement to perform the remedial action is beyond the scope of this Agreement.

4. **Additional Measures**
   Lane County may elect at any time during the term of this Agreement to undertake measures other than those specified under this Agreement necessary to address a release or threatened release of hazardous substances at the Property. Lane County agrees to notify DEQ prior to initiating measures but will not delay whatever action is deemed necessary at the time to contain or mitigate the situation. If the threat is not immediate or after the immediate threat has been addressed Lane County will confer with DEQ for approval.

5. **Assistance Monitoring**
   To assist DEQ in determining if an imminent hazard exists on Lots 4 & 9 for methane from either the former landfill or from other potential non-landfill sources, Lane County will perform four quarterly rounds of methane sampling at the existing sampling points on those lots. The performance of sampling on Lots 4 & 9 does not infer that Lane County is responsible to mitigate hazards on those lots if methane is discovered.
B. Public Participation

1. Public notice and opportunity for comment on any proposed remedy or “no further action” determination will be provided in accordance with ORS 465.320.

C. DEQ Access and Oversight

1. DEQ will use its best efforts, but is not obligated, to provide reasonable advance notice before entering the Property. Lane County agrees to allow DEQ to enter and move freely about all portions of the Property that are in its ownership at all reasonable times for the purposes, among other things, of inspecting records relating to work under this Agreement; observing Lane County’s progress in implementing this Agreement; conducting such tests and taking such samples as DEQ deems necessary; verifying data submitted to DEQ by Lane County; and, using camera, sound recording, or other recording equipment for purposes relating to work under this Agreement.

2. Lane County agrees to permit DEQ to inspect and copy all records, files, photographs, documents, and data relating to work under this Agreement, except that Lane County will not be obligated to permit DEQ inspection or copying of items subject to attorney-client or attorney work product privilege. DEQ will use its best efforts, but not be obligated, to provide reasonable advance notice before records inspection and copying requests.

3. Lane County agrees to identify to DEQ, by addressor-addressee, date, general subject matter, and distribution, any document, record, or item withheld from DEQ on the basis of attorney-client or attorney work product privilege. DEQ reserves its rights under law to obtain documents DEQ asserts are improperly withheld by Lane County.

D. Project Managers

1. To the extent possible, all reports, notices, and other communications required under or relating to this Agreement will be directed to:

   **DEQ Project Manager:**
   Norman Read
   Department of Environmental Quality
   Western Region
   165 E 7th Avenue
   Eugene, OR 97401
   541 687-7348
   541 686-7551
   read.norm@deq.state.or.us

   **Lane County Project Manager:**
   Daniel Hurley
   Lane County Public Works
   Waste Management Division
   3100 E. 17th Avenue
   Eugene, OR 97403
   541 682-3761
   541 682-2353
   daniel.hurley@co.lane.or.us
2. Lane County's and DEQ's Project Managers will be available and have the authority to make
day-to-day decisions necessary to complete the Work Plan under this Agreement.

E. Notice and Samples

Lane County will make every reasonable attempt to notify DEQ of any excavation, drilling, or
sampling to be conducted under this Agreement at least five (5) working days before such activity
but in no event less than twenty-four (24) hours before such activity. Upon DEQ's verbal request,
Lane County will make available to DEQ a split or duplicate of any sample taken pursuant to this
Agreement. DEQ will make every effort to complete analysis of any split or duplicate sample on
a schedule consistent with Lane County’s schedule for related activities.

F. Quality Assurance

Lane County agrees to conduct all sampling, sample transport, and sample analysis in accordance
with the Quality Assurance/ Quality Control (QA/QC) provisions approved by DEQ as part of the
work plan. All plans prepared and work conducted as part of this Agreement will be consistent
with DEQ's "Quality Assurance Policy No. 760.00". Lane County will ensure that each laboratory
used by Lane County for analysis performs such analyses in accordance with such provisions.

G. Records

1. In addition to those technical reports and documents specified under this Agreement, Lane
County agrees to provide to DEQ within ten (10) days of DEQ's written request copies of
existing documents relating to work specified under this Agreement, including QA/QC
memoranda and audits, draft and final plans, final reports, task memoranda, field notes, and
laboratory analytical data that have undergone data quality validation.

2. If DEQ determines that review of raw data or preliminary laboratory reports is necessary in
order to ensure protection of public health, safety, and welfare and the environment. Lane
County agrees to provide that information immediately upon DEQ's written request.

3. Lane County and DEQ will preserve all records and documents in possession or control of
Lane County and DEQ, respectively, or their employees, agents, or contractors that relate in
any way to activities under this Agreement for at least five (5) years after termination under
Section II.R. of this Agreement; provided that after such 5-year period and for five years
thereafter, Lane County and DEQ agree to provide the other sixty (60) days notice before
destruction or other disposal of such records and make the records available for inspection
and copying.

4. Lane County may assert a claim of confidentiality regarding any documents or records
submitted to or copied by DEQ pursuant to this Agreement. DEQ will treat documents and
records for which a claim of confidentiality has been made in accordance with ORS 192.410 through 192.505. If Lane County does not make a claim of confidentiality at the time the documents or records are submitted to or copied by DEQ, the documents or records may be made available to the public without notice to Lane County.

H. Progress Reports

During each month of this Agreement, Lane County agrees to provide to DEQ on or before the tenth (10th) day of each month a copy of a progress report containing the following items. DEQ anticipates that the progress report will not exceed 2 pages in length.

1. Actions taken under this Agreement during the previous month;
2. Actions scheduled to be taken in the next two months;
3. Sampling, test results, and any other data generated by Lane County during the previous month; and
4. A description of any problems experienced during the previous month and the actions taken to resolve them.

I. Other Applicable Laws

1. Subject to ORS 465.315(3), all actions under this Agreement will be performed in accordance with applicable Federal, State, and local laws and regulations.

2. Without limiting the foregoing, all action under this Agreement will be performed in accordance with any applicable federal, state and local laws and regulations related to archeological objects and sites and protection thereof. If archeological objects or human remains are discovered during any investigation, removal or remedial activities at the Property, Lane County will, at a minimum, (a) stop work immediately in the vicinity of the find, (b) provide any notifications required by ORS 97.745 and ORS 358.920, (c) notify the DEQ Project Manager within 24 hours of the discovery, and (d) use best efforts to ensure that Lane County and its employees, contractors, counsel and consultants keep the discovery confidential, including but not limited to, refraining from contacting the media or any third party or otherwise sharing information regarding the discovery with any member of the public.

J. Reimbursement of DEQ Oversight Costs

1. Subject to Lane County’s prior approval of estimated costs, Lane County agrees to pay the costs incurred after execution of this Agreement by DEQ or the State of Oregon in connection with oversight of Lane County’s implementation of this Agreement in
accordance with the attached billing rates (Attachment B). DEQ will submit monthly invoices to Lane County. Each invoice will include a summary of costs billed to date. Lane County also agrees to pay DEQ any outstanding costs incurred under the Letter Agreement.

2. DEQ or State of Oregon oversight costs payable by Lane County will include both direct and indirect costs. Direct costs will include site-specific expenses. Indirect costs will include those general management and support costs of the DEQ and of the Land Quality Division allocable to DEQ oversight of this Agreement and not charged as direct, site-specific costs. Indirect costs will be based on a percentage of direct personal services costs.

3. Lane County agrees to pay the amount of costs billed, by check made payable to the "State of Oregon, Hazardous Substance Remedial Action Fund" within thirty (30) days of receipt and approval of the monthly statement. Lane County will pay simple interest of 9% per annum on the unpaid balance of any oversight costs, which interest will begin to accrue at the end of the 30-day payment period.

K. Prior Approval

Where DEQ review and approval is required for any plan or activity under this Agreement, Lane County agrees not to proceed to implement the plan or activity until DEQ approval is received. Any DEQ delay in granting or denying approval will correspondingly extend the time for completion by Lane County.

L. Dispute Resolution

In the event of disagreement between Lane County and DEQ regarding implementation of this Agreement, Lane County and DEQ will, in the following order: 1) make a good faith effort to resolve the dispute between Project Managers; 2) if necessary, refer the dispute for resolution by the immediate supervisors of the Project Managers; and 3) if necessary, provide each other their respective positions in writing and refer the dispute to DEQ's Administrator of the Land Quality Division or the appropriate Region Administrator and Lane County's [ADMINISTRATOR'S COUNTERPART].

M. Failure to Implement Agreement and Reservation of Rights

1. In the event of Lane County’s failure to comply with this Agreement (including any failure to reimburse oversight costs), DEQ may terminate this Agreement after fifteen (15) days written notice to Lane County.

2. In the event of DEQ's failure to provide oversight in accordance with this Agreement, Lane County may terminate this Agreement after fifteen (15) days written notice to DEQ. Costs incurred or obligated by DEQ before the effective date of any termination of this Agreement will be owed under the Agreement notwithstanding such termination.
3. Lane County does not admit any liability or violation of law by virtue of entering this Agreement.

4. Nothing in this Agreement will prevent Lane County from exercising any rights of contribution or indemnification Lane County might have against any person regarding activities under this Agreement; provided, Lane County waives any right it might have under ORS 465.260(7) to seek reimbursement from the Hazardous Substance Remedial Action Fund for costs incurred under this Agreement.

6. Nothing in this Agreement will prevent DEQ from requiring a RCRA post-closure permit for the Property, if applicable. DEQ approval of activities performed under this Agreement does not constitute approval by the U.S. Environmental Protection Agency (EPA) and does not preclude future independent enforcement of RCRA or CERCLA by EPA.

7. Either party may terminate this Agreement at will, provided that: (a) the terminating party provide written notice to the other party of its intent to terminate, no less than 15 working days before termination; (b) the notice describe the reason for termination and any efforts to resolve related issues; and (c) if requested by the non-terminating party, the terminating party make itself available within the 15 working-day period for a conference call or meeting to discuss the termination. Termination shall be effective unless withdrawn in writing by the terminating party within the 15 working-day period.

8. The following obligations survive any termination under the preceding Paragraph II.M.7: (a) the obligation to preserve records and make them available under paragraph II.G.3 of this Agreement, (b) the obligation to reimburse DEQ oversight costs under subsection II.J of this Agreement, as to costs incurred or obligated up to the date of receipt of the notice of intent to terminate, (c) the obligation to hold harmless and indemnify under subsection II.N of this Agreement, as to claims arising from acts or omissions occurring up to the date of termination. For purposes of ORS 465.315(3), termination of this Agreement will void any DEQ approval previously granted under this Agreement for activities continuing after termination."

N. **Hold Harmless**

1. To the extent permitted by law, Lane County shall save and hold harmless the State of Oregon and its commissions, agencies, officers, employees, contractors, and agents, and indemnify the foregoing, from and against any and all claims arising from acts or omissions related to this Agreement of Lane County or its officers, employees, contractors, agents, receivers, trustees, or assigns. DEQ shall not be considered a party to any contract made by Lane County or its agents in carrying out activities under this Agreement.

2. To the extent permitted by Article XI, Section 7 of the Oregon Constitution and by the Oregon Tort Claims Act, the State of Oregon shall save and hold harmless Lane County and its officers, employees, contractors, and agents, and indemnify the foregoing, from and
against any and all claims arising from acts or omissions related to this Agreement of the State of Oregon or its commissions, agencies, officers, employees, contractors, or agents (except for acts approving or omissions constituting approval of any activity of Lane County under this Agreement). Lane County shall not be considered a party to any contract made by DEQ or its agents in carrying out activities under this Agreement.

O. Parties Bound

This Agreement binds the parties and their respective successors, agents, and assigns. The undersigned representative of each party certifies that he or she is fully authorized to execute and bind such party to this Agreement. No change in ownership or corporate or partnership status relating to the Property will in any way alter Lane County’s obligations under this Agreement, unless otherwise approved in writing by DEQ.

P. Modification

DEQ and Lane County may modify this Agreement by mutual written agreement.

Q. Duration and Termination

Upon completion of work under this Agreement, Lane County will submit to DEQ a written notice of completion. This Agreement will be deemed satisfied and terminated upon DEQ’s issuance of a “no further action” determination or DEQ’s approval or selection of a remedial action, upon payment of all oversight cost owed, and upon DEQ’s issuance of a letter acknowledging satisfactory completion of activities in accordance with this Agreement. Such letter will be issued within sixty (60) days of receipt of notice of completion and upon receipt of payment of all DEQ oversight costs or as soon thereafter as is reasonably practicable.
Figure 1

Pioneer Business Park - Lot Map
Figure 2

1965 Aerial Photo
Attachment A

Scope of Work
1. Introduction and Background (this section will introduce the issues, briefly summarize background for the investigation and present the overall goals of the document)

The primary goal of the investigation is to create a reference document that can be used as the basis for future decision making. Moreover, data collection will focus on providing information needed for remedy design.

2. Objectives of Focused Methane Investigation

To better understand the effects of landfill gas (LFG) generation and migration at the former Bethel-Danebo Landfill (BDL), and from that develop an effective LFG management strategy, Lane County has identified several objectives for this focused methane investigation. Several of the tasks, designed to meet the objectives described below, will be conducted in parallel to better meet the proposed schedule and to address the overall goals of the investigation.

2.1 Characterize Physical Hydrogeology and Controls on Methane Migration

Methane migrates along pathways that are controlled by the physical characteristics of soils at the site. Understanding physical parameters such as relative soil permeability, depth to groundwater and seasonal variability of the groundwater surface, lateral continuity of permeable units, presence of confining units, and manmade pathways such as utility corridors, among others, is critical to develop a conceptual site model of how methane migrates from its source area and identifying properties potentially at risk from the presence of methane. This task will focus on understanding these variables, summarize what is known about the geology and hydrogeology of the site from available technical reports, discuss results from monitoring currently being done by the County.

2.2 Identify Methane Migration Pathways and Receptors

Lane County will develop a conceptual site model (CSM) that identifies the source of methane, describes pathways and controls on migration from source to receptors, estimates the potential risk at those receptors, and defines barriers to methane migration, both natural and manmade. The CSM will be defined through understanding the site hydrogeology, methane measurements showing lateral distribution and variations from seasonal fluctuations in groundwater levels. The CSM will be used in refining remedial action objectives for the site, evaluating remedial technologies, and in devising compliance boundaries and a comprehensive LFG monitoring program.

2.3 Evaluate Efficiency of Existing Controls

The primary interim remedial action measure (IRAM) for the site is a trench vapor extraction system (trench) that was constructed in 2011. The trench is just east of the eastern margin of the former landfill, extending north and south of West First Avenue. Ten methane monitoring probes (two west and eight east of the trench) monitor for the presence of methane. The initial purpose of the trench was to cut off methane migration to properties east of the landfill with a physical barrier that passively vents the methane to the atmosphere. An objective of the investigation will be to evaluate the effectiveness of the trench in controlling methane migration. This will be done by comparing monitoring data for the trench in passive mode (i.e., no vacuum applied to the system) with data in active mode with blowers creating vacuum on the trench. The goal of this comparison will be to identify whether any additional controls are needed to augment the trench.
Focused Methane Investigation Outline
Bethel-Danebo Landfill - Lane County

In addition to the evaluating the trench, the County will assess and report on other technologies that have been implemented for the site, such as retrofitting light poles and monitoring buildings, utilities, and confined spaces for methane, and whether the existing monitoring network is adequate.

2.4 Identify Applicable Technologies and Assess Feasibility for Use at Site
Our understanding of the site gained from assimilating information for the previous objectives will help focus identifying site specific technologies and assessing their feasibility for use at the site. Tasks will include: (1) evaluate whether technologies will effectively control methane migration, (2) identify where to monitor for methane—be they pathways or at receptors, and (3) identify whether institutional controls, such as notices on high-risk properties, would be effective in limiting site development to appropriately designed structures.

2.5 Develop Implementation Plan and Schedule
This last objective will put into action the proposed remedy and define a schedule for implementation. Given our current understanding of the site, the remedy will likely include a combination of IRAMs, potentially modified for greater effectiveness; institutional controls; and a monitoring program that will be used to (1) evaluate the performance of the selected remedy, (2) identify whether methane is migrating beyond the control structures, and (3) test for methane at existing or proposed structures, including utilities, buildings.

3. Site Conditions
3.1. Topography (site map for area is based on LIDAR; recent survey to tops of well casings and common points has resolved elevation datum inconsistencies from different generation surveys. This task will resolve elevation datum inconsistencies to provide a more accurate base map)

3.2. Existing Facilities, Buildings, Utilities (this task will research and present information on construction of utilities; general information for building construction on adjacent properties; safety measures/alarm systems currently used to mitigate explosion hazard on adjacent properties and whether in working order; research will be done at City building/planning department and as possible, with property owners)

3.3. Identify owners of parcels adjacent to landfill (information will be presented in a table with contact information as available from search of County property records. Property location relative to potential risk from methane migration will be discussed in §6.3).

3.4. Surface Water (describe historical information on water elevations in the A3 channel and flow direction from previous technical reports for the area [e.g., PES (2005) contains surface water measurements from 2001-2004]).

3.5. Geology and Hydrogeology (this section will describe geologic units based on descriptions of site soil from soil borings, test pits, vapor points, and geologic maps [USGS Water Supply paper 2018])

3.5.1. Lithologic Units, Waste, and Lateral Continuity (detailed description of units with 3 cross sections—2 oriented east-west across the SVE trench, and one oriented north-south)
Focused Methane Investigation Outline
Bethel-Danebo Landfill - Lane County

3.5.2 Groundwater Occurrence and Depth (this will describe which materials groundwater occurs in and its depth. Information will be regional and site-specific based on PES data from 2001-2004 and a more limited data set for 4 site wells currently being collected by Lane County)

3.5.3 Seasonal Changes in Groundwater levels and Flow Direction (will provide charts on historical range of groundwater levels from previous study, contour maps that show seasonal flow direction; will also discuss and illustrate how the groundwater interacts with the A3 drainage ditch and whether the ditch isolates the unsaturated zone to the south and west of the landfill area; the range of water level information will be illustrated on the cross sections)

4. Occurrence of Methane

4.1 Lateral distribution, concentration, and migration behavior (this section will briefly summarize methane monitoring results from earlier studies and then discuss results of current methane monitoring).

4.1.1 Review current methane data (present concentration/pressure plots of probes east and west of trench, and sample ports within the trench; also discuss significance of methane/CO2 ratios in the area)

4.1.2 Identify relevant trends and relationships between historical monitoring results, current monitoring results, and varying on-site conditions

4.1.3 Identify data gaps in methane information (this will specifically relate to lateral distribution of methane away from the landfill along potential pathways to possible receptors or properties)

4.2 Possible field work to address identified data gaps (before any field work, the County will submit a focused work plan that describes locations and depths, types of drilling, and methane testing procedures and instrumentation)

4.2.1 Methane soil gas data or vapor points to determine extent of migration (e.g., to north)

4.2.2 Vapor testing of utilities such as sewers

4.2.3 Testing and monitoring of methane trench with active vacuum

5. Interim Remedial Action Measures (IRAMs)

5.1 Methane Cutoff Trench - this section will describe construction of the trench, depths, types of materials encountered, and associated monitoring probes.

5.1.1 Present the methane monitoring results as a passive system

5.1.2 Present methane monitoring results as an active system

5.1.3 Discuss effectiveness under both scenarios and evaluate whether the trench needs to be modified to control methane migration to the east

5.2 Describe the current monitoring being done in buildings, probes, and groundwater wells (the future monitoring program will be proposed in §8.5)

5.3 Fire Marshall inspection of building detection systems and alarms (discuss protocol and oversight of Fire Marshall with regard to future inspection/activation or requirements imposed on building owners)
Focused Methane Investigation Outline
Bethel-Danebo Landfill - Lane County

5.4. Electrical retrofit of lighting to meet methane/explosion codes (the County will submit a workplan to the DEQ that describes steps it is taking to retrofit the light poles in the southwest part of the property, as well as the remaining lights at the site; the County will prepare a letter report to the DEQ that summarizes mitigation measures for outdoor lighting)

6. Site Conceptual Model (to discuss CSM at 1st DEQ meeting)
6.1. Summarize methane source (this will discuss sources and seasonal changes in methane generation, including the landfill, and based on monitoring results or test probes, determine whether other sources of methane are possible, such as wood waste in the filled log ponds north of the landfill [e.g., lots 14, 15, 16]).
6.2. Methane migration preferences and controls (this will examine physical pathways such as lateral extent of unsaturated-zone permeable soils, utility corridors, and how confining units combined with seasonal changes in groundwater table affect migration. We will also examine physical barriers to migration such as the A3 surface water channel to the west and south, as well as how distance from the landfill affects migration and methane concentration).
6.3. Identify receptors (one of the primary goals of the study is to identify which receptors are potentially at risk and then use that information to design controls or monitoring to mitigate that risk. In particular, we will examine potential for methane migrating to or accumulating in electric utilities or sewers, confined spaces, buildings or other types of structures, at properties both on and adjacent to the landfill).
6.4. Define methane concentration standards* and compliance boundaries (acceptable methane concentrations are defined by regulation as 1.25 percent by volume within on-site structures [excluding gas control or gas recovery system components] or 5 percent by volume as measured in soil gas at a defined compliance boundary).

7. Applicable Control Technologies and Focused Remedy Evaluation
7.1. Preliminary Remedial Action Objectives-RAOs (these will be more fully developed as part of the investigation and technologies evaluation, however several preliminary RAOs have been identified for the site)
7.1.1. Control landfill gas with engineering controls so that concentrations meet acceptable limits at compliance boundaries
7.1.2. Maintain existing controls at the site so they function as designed
7.1.3. Evaluate performance of methane controls through monitoring and identify whether conditions become unsafe in a timely manner
7.1.4. Prevent exposure to methane through institutional controls, as appropriate, to supplement engineering controls
7.2. Technology Identification and Equipment Specification (this will examine applicability of site suitable control/monitoring technologies, specifically those technologies involved in upgrading the existing passive system to an active collection system. These will include: varying blower systems, continuous monitoring systems, and remote callout systems)
7.3. Focused evaluation of remedial measures for Bethel Danebo Landfill (design considerations, capital expense considerations, O&M considerations, longevity issues)
Focused Methane Investigation Outline
Bethel-Danebo Landfill - Lane County

7.4. Evaluation of existing LFG monitoring devices and recommendations for upgrading the system as needed to address remedy performance and whether methane is migrating to properties potentially at risk.

8. Implementation Plan
8.1. Recommended Remedial Action (this section will describe various elements of the selected remedy and how each addresses the RAOs defined above).
8.2. Design and plans for implementation (this will present the details of the design with any accompanying design plans attached in an appendix. It will also discuss how the remedy will be implemented, whether staged, and how the plans integrate with expected post-closure maintenance activities, monitoring and notification)
8.3. Schedule (for those elements that were not implemented as IRAMs, this section will provide a schedule for performing any remaining construction, installing monitoring devices, etc.)
8.4. Reporting - Before April 1st of each year, Lane County will prepare and submit to DEQ one paper copy of the annual monitoring report that addresses the previous calendar year’s monitoring events (i.e., from January 1st to December 31st). The report will follow the format established in the approved LGMP, and will be prepared and stamped by an Oregon Registered Geologist or Certified Engineering Geologist. At minimum, the report will:
8.4.1. Describe significant events that occurred at the Property during the last reporting period
8.4.2. Summarize landfill gas monitoring data and present the data analysis and evaluation specified in the LGMP
8.4.3. Identify maintenance issues with the landfill gas extraction trench or monitoring networks
8.4.4. Summarize any data problems (e.g., QA/QC failures)
8.4.5. Include copies of all field and laboratory data for the past reporting period
8.4.6. Include a site map that shows where methane exceeds acceptable levels
8.4.7. Provide any other compliance-related information requested by the DEQ
8.4.8. Evaluate the effectiveness of the trench methane extraction system, along with conclusions for any modifications deemed necessary to improve effectiveness

8.5. Landfill Gas Monitoring Plan (LGMP): the LGMP will be a comprehensive LFG monitoring and management plan that is integrated to evaluate the performance of engineering controls such as the trench, as well determine degree of methane migration and address the potential for commercial development on properties potentially at risk and that adjoin the landfill. The LGMP will:
8.5.1. Describe landfill gas monitoring probe network, sampling, and analysis plan, procedures for quality assurance/quality control, approach for data analysis and evaluation, and reporting requirements.
8.5.2. Provide a schedule and procedures for performance monitoring associated with the trench and other engineering controls implemented at the site.
8.5.3. Describe monitoring at the compliance boundary and procedures to respond to an exceedance of methane levels above standards.*
8.5.4. Describe suggested procedures and schedules for monitoring on-site structures, confined spaces, and existing commercial developments. This part of the plan will provide
Focused Methane Investigation Outline
Bethel-Danebo Landfill - Lane County

information to be available to existing and new commercial facilities such that third parties are able to perform self monitoring.

8.5.5. As necessary, Lane County will revise the LGMP to reflect current facility conditions or changes in sampling procedures or requirements and submit all LGMP revisions for DEQ’s approval.

*Landfill Gas Standards: from Oregon Administrative Rules, Chapter 340, Divisions 94 and 122

OAR 340-94-0060(4) Gas Control. No person shall establish, expand or modify a landfill such that:

(a) The concentration of methane (CH4) gas at the landfill exceeds 25 percent of its lower explosive limit in facility structures (excluding gas control or gas recovery system components) or its lower explosive limit at the property boundary;

(b) Malodorous decomposition gases become a public nuisance.

OAR 340-122-0040(3) In the event of a release of methane from a historic solid waste landfill, removal or remedial actions shall be implemented to prevent concentrations of methane exceeding or likely to exceed 1.25% by volume in confined spaces and structures, other than in equipment, piping, wells, or other structures designed for the collection and management of methane and approved by the Department.
Focused Methane Investigation Outline
Bethel-Danebo Landfill - Lane County

Appendices:

1. Borehole Logs and Well Completion Diagrams
2. Methane monitoring results and plots
3. Technologies Review
4. Design Plans, as appropriate
5. Documentation for retrofit of light pole electrical IRAM
6. Documentation for Fire Marshall Inspections
7. Documentation of current landfill gas mitigation and alarm systems in place at affected properties
8. Landfill Gas Monitoring Plan (LGMP)

Tables:

1. Well and gas probe construction and type
2. Property Owner and Contact Information
3. List of Technologies or Remedial Alternatives

Figures:

1. Site Map-showing physical features and topography
2. Geologic Cross Sections
3. Well and Surface Water Hydrographs
4. Methane Concentration and Pressure Plots (for monitoring probe locations)
5. Conceptual Design
6. Site Map illustrating properties potentially at risk from methane migration
## Preliminary Methane Investigation Schedule

**Closed Bethel-Danebo Landfill**  
Lane County, Oregon

<table>
<thead>
<tr>
<th>Activity Name</th>
<th>2013</th>
<th>2014</th>
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<tbody>
<tr>
<td>Negotiate Letter Agreement and SOW</td>
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<tr>
<td>Electrical/Light Pole Retrofit</td>
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<tr>
<td>Workplan/Design</td>
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<td>Implement work</td>
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<td>Report</td>
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<td>Trench-Active System Testing</td>
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<td>System design and workplan</td>
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<tr>
<td>DEQ review and approval</td>
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<tr>
<td>Connect North/South Trenches</td>
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<td>Vacuum System Construction/Install</td>
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<td>System testing and monitoring</td>
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<td>Preliminary Geology &amp; Methane Data Review</td>
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<td>DEQ Meeting-Preliminary Findings</td>
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<td>DEQ Review and Approval</td>
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<td>Field Work</td>
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<td>DEQ Meeting-Preliminary Findings</td>
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<tr>
<td>Investigation Report Preparation</td>
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Tasks and dates are preliminary to aid in project development. Schedules will be refined as part of project scoping and coordination with permitting agencies and subcontractors. DEQ will be notified of revised schedules by e-mail correspondence as they are finalized.
Attachment B

DEQ Billing Rates
Oregon Department of Environmental Quality
Billing Rates

Project Name: Pioneer Business Park Lane County
Project Manager: Norman Read
Project Team Members: Tim Spencer
Project office/region: DEQ Eugene

PERSONAL SERVICES (see breakdown, below)

Personal services (technical staff)

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<tr>
<th>Staff</th>
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<tr>
<td>Project Engineer (Tim Spencer)</td>
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Top-Step Salary Schedule, as of 12/1/12

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