**Chapter 3: Market and Industry Analysis**

**Appendix 3.2:** Distributor Firms in the Radiation Detection Industry

|  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Competitor** | | | | **Direct Competitor** | **Industry** | **Company Size** | **Threat Level** | **Threat Notes** | **Description** |
| Alpha Spectra | | | | No | Radiation Detectors | Medium | Low |  | They are a distributor of radiation detection products |
| Atlantic Nuclear Corp | | | | No | Nuclear, Homeland Security | Small | Low |  | Sells Instrumentation and Calibration Services |
| EcoTest | | | No | Retailer | Medium | Low |  | Offers a wide range of nuclear and radiation equipment |
| Fluke Biomedical | | No | Medical | Large | Low |  | Fluke is a medical company that has a range of radiation dosimeters and safety products. They do not appear to focus on Homeland Security |
| FujiFilm Holdings | | No | Healthcare and Others | Large | Low |  | FujiFilm offers a range of products and touches on radiopharmaceuticals and diagnostic equipment. |
| Gamma Data | | No | Nuclear Industry, Science | Large | Low |  | Gamma Data is a supplier of instruments and tools related to the nuclear field and optronics |
| James Fisher Nuclear | No | Nuclear Industry | Large | Low |  | A range of nuclear industry related products and services |
| Laurus Systems Inc | No | Detection Products | Medium | Low |  | Laurus offers products related to multiple fields including hazmat, nuclear energy, oil and gas, homeland security, hospitals, military and education |
| Nuclear Technology Services, Inc. | No | Consulting | Small | Low |  | Offer books, software and consulting related to nuclear industry |
| Owens Scientific Inc | Potentially | Radiation Detection, Nuclear | Medium | Low |  | Sells a range of radiation related products |
| Qaltek | No | Radiation, Consulting, Nuclear | Medium | Low |  | Qaltek distributes radiation products and also works in consulting and installation |
| Radiation Detection Co | No | Dosimetry | Medium | Low |  | Radetco offers dosimetry solutions to a range of industries |
| Shimadzu | No | Healthcare, Medical | Large | Low |  | Medical Related Distributor |
| Southern Scientific LTD | Potentially | Radiation Detection, Nuclear | Large | Low |  | Offers a range of products some related to homeland security but it appears they are mostly a distributor |

**Appendix 3.2:** Firms Operating in the Nuclear Industry

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| **Competitor** | **Direct Competitor** | **Industry** | **Company Size** | **Threat Level** | **Threat Notes** | **Description** |
| AccuSync | No | Medical | Small | Low |  | Manufactures nuclear medicine and measurement Devices |
| AGFA Healthcare | No | Medical | Large | Low |  | They have Digital Radiography, Enterprise Imaging and Hospital IT |
| Arktis | Potentially | Tactical Apparel | Large | Medium |  | Manufacturer of gear for special forces and law enforcement |
| Arrow Tech | Yes | Homeland Security, Healthcare, Academia | Medium | Medium | Arrowtech does not currently offer any competitive SPRDs | Arrowtech was founded in 1982 by FEMA. They offer a range of detectors that span across many industries including Homeland Security |
| Ashland | No | Medical, Radiography, Multiple Other | Large | Low |  | They offer a huge range of products but do not appear to be detector related |
| Beckman Coulter | No | Life Sciences | Very Large | Low |  | Healthcare, research and discovery |
| Berkeley Nucleonics Corporation | Yes | Radiation Detection | Medium | High | Offer a range of detectors; Able to create competing products; Current products are too large and bulky for active duty law enforcement | Manufacturer of electronic field‑portable radiation detectors and instruments for nuclear research. |
| Berthold | No | Nuclear, Bioanalytic | Large | Low |  | Specializes in EM (electromagnetism) detection including radiation |
| Bertin Instruments / Saphymo | Yes | Nuclear, Defense, Life Sciences, Environmental | Large | Medium |  | Many products relate to environmental monitoring but no PRDs. |
| Bruker | Yes | Detection, Biology, Medical, Multiple others | Large | High | No directly competing product at the moment | High quality detection products for a range of industries |
| Bubble Technology Industries, Inc. | Yes | Homeland Security Law Enforcement | Medium | Low | Dosimeters and large scale detection devices; no SPRD products | Multiple products for radiation protection from terrorist threats. Recently received a $3M grant ($3,339,169.28) |
| Canberra | Yes | Nuclear, Radiation Safety | Medium | Medium | Currently don’t offer many PRD or SPRDs; capability to expand into this line | Acquired by Mirion |
| Carestream Health | No | Medical, Dental | Large | Low |  | Radiology, x-ray, medical and dental equipment |
| Centronic Nuclear | Potentially | Defense, Nuclear, Aerospace, Research, Oil and Gas, Medical | Large | Low |  | Lab related equipment, not relevant to law enforcement |
| CIRS inc | Low | Medical | Large | Low | Mostly focuses on medical industry |  |
| Cividec | Potentially | Radiation Detection, Nuclear | Large | Medium |  | Range of detectors for lab usage |
| CP Medical | Potentially | Medical | Large | Low |  | Offer a range of medical device products |
| DigiRad | No | Healthcare, Nuclear | Large | Low |  | Offers mobile and on site solutions for imaging including cameras |
| Eckert & Ziegler Group | No | Nuclear, Healthcare | Large | Low |  | Offers products related to radiation therapy, isotope products, radiopharmaceuticals |
| Environics | Potentially | Multiple | Medium | Medium | They do not appear to have a directly competing product at the moment | Computerized gas flow instrumentation |
| Environmental Instruments Canada | No | Consulting, Software, Nuclear | Small | Low |  | Works in radiation safety and training has released an android app |
| Esaote | No | Medical and Healthcare | Large | Low |  | Esaote offers a range of range of equipment and software related to the medical field in including ultrasound and MRI equipment. |
| Flir | Yes | Defense, Aviation, Nuclear, Tactical, Homeland Security, Military, Multiple Others | Large | Medium |  | Flir offers imaging systems to many different firms and industries and has a range of radiation detection products. They are a major technology company in a range of industries |
| Fluke Biomedical | No | Medical | Large | Low |  | Fluke is a medical company that has a range of radiation dosimeters and safety products. They do not appear to focus on Homeland Security |
| FujiFilm Holdings | No | Healthcare and Others | Large | Low |  | FujiFilm offers a range of products and touches on radiopharmaceuticals and diagnostic equipment. |
| Gamma Pix | Potentially | Radiation Detection | Medium | Medium | Low cost solution, currently lacks sensitivity needed for preventive detection | They have created an app for mobile phones to detect radiation |
| GE Healthcare | No | Healthcare, Medical | Large | Low |  | They offer a range of medical products including those related to radiology |
| GeoRadis | Potentially | Radiation Detection | Medium | Medium |  | Products for radiation detection and EM |
| Global Medical Isotope Systems | No | Healthcare, Nuclear | Small | Low |  | Develop compact medical isotope systems |
| Hitachi Healthcare | No | Medical | Large | Low |  | Offers a range of medical products including MRI, Ultrasound and CT Equipment |
| Kromek | Yes | Radiation Detection, Nuclear | Large | High | They offer products directly related to homeland security | They are a large company with a range of detector and imaging products |
| Lab Impex Systems Ltd | Potentially | Security and Safety, Nuclear, Medical, Laboratory | Large | Medium | Analyze | They offer handheld detection devices and larger devices. Currently they don't appear to have any PRDs that would be easily adopted by Law Enforcement |
| Landauer | Potentially | Nuclear | Large | Low | No PRDs in product line | Focus on occupational radiation monitoring |
| Leidos, Inc. | Potentially | Civil, Defense, Healthcare | Large | Medium | Offers large scale radiation detection products | Leidos is a huge company with multiple products and services Leidos received a grant($5,223,410) |
| Ludlum Instruments | Potentially | Radiation Detection | Large | Medium | Industry leader for handheld radiation survey instruments; no PRDs in product line | Ludlum offers a range of products related to radiation detection |
| Merge and IBM Company | No | Healthcare, Radiology, Software | Large | Low |  | Merge is part of IBM and offers a range of healthcare products and services |
| Mirion Technologies | Yes | Nuclear, Radiation Detection | Large | High |  | A large firm offering radiation detection and safety solutions |
| Nordion | No | Healthcare | Large | Low |  | Nordion offers gamma technologies and medical isotopes relevant to the healthcare field |
| Nuclear Solutions Division | No | Consulting | Small | Low |  | Nuclear Solutions Division mainly functions as a consultant in the nuclear industry. |
| NucSafe | Potentially | Radiation Detection, Nuclear | Medium | Medium | They are in the direct industry of RadAlert but do not have any current PRDs | Offers a range of radiation detection products |
| On Site Systems | No | Software | Medium | Low |  | On Site System develops radiation related software products |
| Ortec Ametek | Potentially | Nuclear Detection | Large | Medium | Industry leader for high performance gamma-ray spectrometers; no PRDs in product line | Ortec Ametek directly manufactures multiple technologies related to radiation detectors, nuclear instrumentation and software |
| Oxford Instruments | Potentially | Instrument Manufacturing | Large | Low | They offer a range of radiation products but do not appear to have any PRDs | Oxford Instruments is a large company with products covering a range research and multiple Industries |
| Passport Systems | Potentially | Homeland Security | Large | Medium | They do not currently have many competing products but could expand into PRDs and SPRDs | Passport Systems offers large scale as well as networked portable solutions to radiation detection and protection. They work directly with the Federal Government and Homeland Security. They recently won a large grant ($4,376,707). |
| Philips Healthcare | No | Medical | Large | Low |  | Offers a range of medical products including MRI, Ultrasound and CT Equipment and Diagnostic Imaging Equipment |
| Physical Sciences, Inc. | Potentially | Gas and Radiation Detection | Large | Low | 1) Does not appear to have PRDs 2) Site was potentially hacked so I didn't explore further | They have a range of detection products related to the gas and nuclear industry. grant ($4,837,559) |
| Pico Envirotec | Potentially | Radiation, Geophysics | Medium | Medium | No current PRD | Radiation and geophysical measurement in the air or ground |
| Polimaster\* | Yes | Radiation Detection | Large | High |  | Polimaster manufactures a range of radiation detection products |
| Protean Instruments | No | Radiation Detection | Medium | Low |  | Protean builds high performance alpha and beta counting systems |
| Radcomm Systems | Potentially | Radiation Detection | Large | Medium |  | Radcomm builds radiation detection systems |
| Radiation Solutions Inc | No | Radiation Detection, Nuclear | Large | Low |  | Specialize in large vehicle-based detection systems for airplanes, helicopters, boats, etc. Appear to offer products from other manufacturers, not as primary business. |
| RAE Systems | Yes | Detection | Large | High |  | Rae Systems is a large manufacturer of detection systems. They appear to be a part of Honeywell |
| Saphymo | Potentially | Radiation Detection, Nuclear | Large | Medium |  |  |
| Sensor Technology Engineering | Yes | Radiation Detection | Small | Medium | They offer gamma and neutron handheld detectors | They have 3 different hand held radiation detectors |
| Siemens Healthcare | No | Medical | Large | Low |  | Offers medical and diagnostic equipment |
| Smiths Detection | Potentially | Detection, Inspection | Large | Medium | No current PRD | They offer a range of detection systems from small to a very large scale, but no PRDs |
| Sun Nuclear | Potentially | Medical | Large | Low | Mostly focuses on medical industry | Offers a range of products related to medical field |
| Symetrica | Potentially | Radiation Detection, Homeland Security | Large | Medium | No current PRD | They offer a range of detection products specifically for homeland security related tasks |
| Technical Associates Nuclear Instruments and Systems | Yes | Radiation Detection, Safety Systems | Large | High |  | They offer a range of radiation related products and also safety related equipment |
| The MJW Companies | No | Consulting | Medium | Low |  | They offer a rang of consulting services geared towards the nuclear industry |
| Thermo Fisher Scientific | Yes | Life Sciences | Large | High |  | Thermo Fisher Scientific is a massive company with products covering multiple industries. They specifically manufacture radiation equipment |
| Toshiba Medical | No | Technology, Healthcare | Large | Low |  | They offer a range of products including radiation products. They mostly focus their radiation products in the healthcare sector |
| Tracerco | Potentially | Radiation Detection, Nuclear | Large | Medium |  | They offer a range of detection and dosimetry equipment |
| Alpha Spectra | No | Radiation Detectors | Medium | Low |  | They are a distributor of radiation detection products |
| Atlantic Nuclear Corp | No | Nuclear, Homeland Security | Small | Low |  | Sells Instrumentation and Calibration Services |
| EcoTest | No | Retailer | Medium | Low |  | Offers a wide range of nuclear and radiation equipment |
| Fluke Biomedical | No | Medical | Large | Low |  | Fluke is a medical company that has a range of radiation dosimeters and safety products. They do not appear to focus on Homeland Security |
| FujiFilm Holdings | No | Healthcare and Others | Large | Low |  | FujiFilm offers a range of products and touches on radiopharmaceuticals and diagnostic equipment. |
| Gamma Data | No | Nuclear Industry, Science | Large | Low |  | Gamma Data is a supplier of instruments and tools related to the nuclear field and optronics |
| James Fisher Nuclear | No | Nuclear Industry | Large | Low |  | A range of nuclear industry related products and services |
| Laurus Systems Inc | No | Detection Products | Medium | Low |  | Laurus offers products related to multiple fields including hazmat, nuclear energy, oil and gas, homeland security, hospitals, military and education |
| Nuclear Technology Services, Inc. | No | Consulting | Small | Low |  | Offer books, software and consulting related to nuclear industry |
| Owens Scientific Inc | Potentially | Radiation Detection, Nuclear | Medium | Low |  | Sells a range of radiation related products |
| Qaltek | No | Radiation, Consulting, Nuclear | Medium | Low |  | Qaltek distributes radiation products and also works in consulting and installation |
| Radiation Detection Co | No | Dosimetry | Medium | Low |  | Radetco offers dosimetry solutions to a range of industries |
| Shimadzu | No | Healthcare, Medical | Large | Low |  | Medical Related Distributor |
| Southern Scientific LTD | Potentially | Radiation Detection, Nuclear | Large | Low |  | Offers a range of products some related to homeland security but it appears they are mostly a distributor |

**Chapter 4: Competitor Analysis**

**Appendix 4: Competitor Analysis**

**Appendix 4.1:** Detailed Competitor and Individual Product Analysis

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| **Company** | **Detector name** | **Type** | **Price** | **Potential Competitor** | **Gamma** | **Neutron** | **Notes** |
| Arrow Tech | DMC 2000GN Electronic Dosimeter, Gamma & Neutron | PRD |  | Potentially | Yes | Yes | No Gamma Spectrum |
| Arrow Tech | DMC 3000 Electronic Personal Dosimeter, X-ray & Gamma | PRD |  | Potentially | Yes | No | 1) No Gamma Spectrum 2) This appears to be the exact same detector as the Mirion DMC 3000 |
| Arrow Tech | RAD-60R Personal Electronic Dosimeter | PRD |  | Potentially | Yes | No | No Gamma Spectrum |
| Berkeley Nucleonics Corporation | Model 945- SAM III Isotope Identifier with Reachback | Handheld |  | Potentially | Yes | Optional | 1) Smartphone based application combined with detector |
| Berkeley Nucleonics Corporation | Model 950- Ruggedized Isotope Identifier | Handheld |  | Potentially | Yes |  | 1) Detects and identifies radionuclides 2) Meets ANSI 42.34 Standards 3) Patented Smartphone based hand-held RIID |
| Bubble Technology Industries, Inc. | RadCompass | Handheld |  | Potentially | Yes |  | 1) Offers a handheld detector with location based source finding |
| Canberra | UltraRadiac-Plus Personal Radiation Monitor | Handheld |  | Potentially | Yes |  | 1) Made to be used in extreme environments |
| Environmental Instruments Canada | GammaGuard | Handheld |  | Potentially | Yes |  | This is an application that runs on the users phone |
| FLIR | identiFINDER R100 | PRD |  | Yes | Yes |  |  |
| FLIR | identiFINDER R200 | SPRD |  | Yes | Yes |  |  |
| FLIR | identiFINDER R300 | SPRD | $9,950 | Yes | Yes | Optional |  |
| Kromek | D3S | Handheld |  | Yes | Yes | Yes | 1) Thermal neutron scintillator detector and CsI(Tl) gamma detector 2) Bluetooth Connectivity 3) Integrates with phone |

**Appendix 4.1:** Detailed Competitor and Individual Product Analysis (continued)

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| **Company** | **Detector name** | **Type** | **Price** | **Potential Competitor** | **Gamma** | **Neutron** | **Notes** |
| Mirion Technologies | DMC 2000 GN | Neutron Dosimeter | PRD |  | No | Yes | Yes | 1) This appears to be the same as the Arrow Tech DMC 2000 GN |
| Mirion Technologies | DMC 3000 PRD Module | PRD |  | Potentially |  |  | Radiation Counting |
| Mirion Technologies | PDS GO | PRD |  | Yes | Yes |  |  |
| Mirion Technologies\* | PDS-100GN | PRD | PRD | $3,000 | Yes | Yes | Yes | Separate Gamma and Neutron Channel |
| Mirion Technologies\* | PDS-100GN/ID | Spectroscopic Personal Radiation Detector (SPRD) | SPRD | $4,950 | Yes | Yes | Yes | 1) Can distinguish types of radiation on the spot (NORM, Background, SNM) |
| Passport Systems | G300 SmartShield | Handheld |  | Yes | Yes |  | 1) Allows for Geolocation of radiological sources 2) Can be linked to other detectors 3) Adds Map Functionality 4) Has three parts detector, phone and master software application |
| Polimaster | Gamma Personal Radiation Detector PM1401GNB | SPRD | $4,800 | Yes | Yes | Yes | 1) Detect and identify radioactive and nuclear materials |
| Polimaster | Gamma Personal Radiation Detector PM1401MB | SPRD |  | Yes | Yes | Yes | 1) Detect and identify radioactive and nuclear materials |
| Polimaster | Personal Combined Radiation Detectors/Dosimeters PM1703MO-1A | SPRD |  | Yes | Yes |  | 1) Bluetooth Connectivity 2) Isotope Identification 3) Networking Software |
| Polimaster | Personal Combined Radiation Detectors/Dosimeters PM1703MO-1B | SPRD |  | Yes | Yes |  | 1) Bluetooth Connectivity 2) Isotope Identification 3) Networking Software |

**Appendix 4.1:** Detailed Competitor and Individual Product Analysis (continued)

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| **Company** | **Detector name** | **Type** | **Price** | **Potential Competitor** | **Gamma** | **Neutron** | **Notes** |
| Polimaster | Personal Radiation Detectors PM1703 GNB | SPRD |  | Yes | Yes | Yes | 1) Has gamma detection and neutron detection 2) Uses Csi(TI) for gamma and LiL(Eu) for neutron 3) Bluetooth Connectivity 4) Isotope Identification 5) Networking Software |
| Polimaster | Personal Radiation Detectors PM1703 MB | SPRD | $4,312 | Yes | Yes | Yes | 1) Has gamma detection and neutron detection 2) Uses Csi(TI) for gamma and LiL(Eu) for neutron 3) Bluetooth Connectivity 4) Isotope Identification 5) Networking Software |
| Polimaster | PM1401GNA | PRD | $3,667 | Yes | Yes | Yes | 1) Portable detector can search for gamma and neutron radiation |
| Polimaster | PM1401MA/MB | PRD |  | Yes | Yes |  | 1) Can detect gamma even if shielded 2) Designed to be used in harsh environments |
| Polimaster | PM140GNB | PRD |  | Yes | Yes | Yes | 1) Portable detector can search for gamma and neutron radiation |
| Polimaster | PM1701M | PRD |  | Yes | Yes |  | 1) Able to distinguish between background radiation |
| Polimaster | PM1703GN | PRD | $2,933 | Yes | Yes | Yes | 1) Can search for radioactive and nuclear materials |
| Polimaster | PM1703GNA | PRD | $3,389 | Yes | Yes | Yes | 1) Can search for radioactive and nuclear materials |

**Appendix 4.1:** Detailed Competitor and Individual Product Analysis (continued)

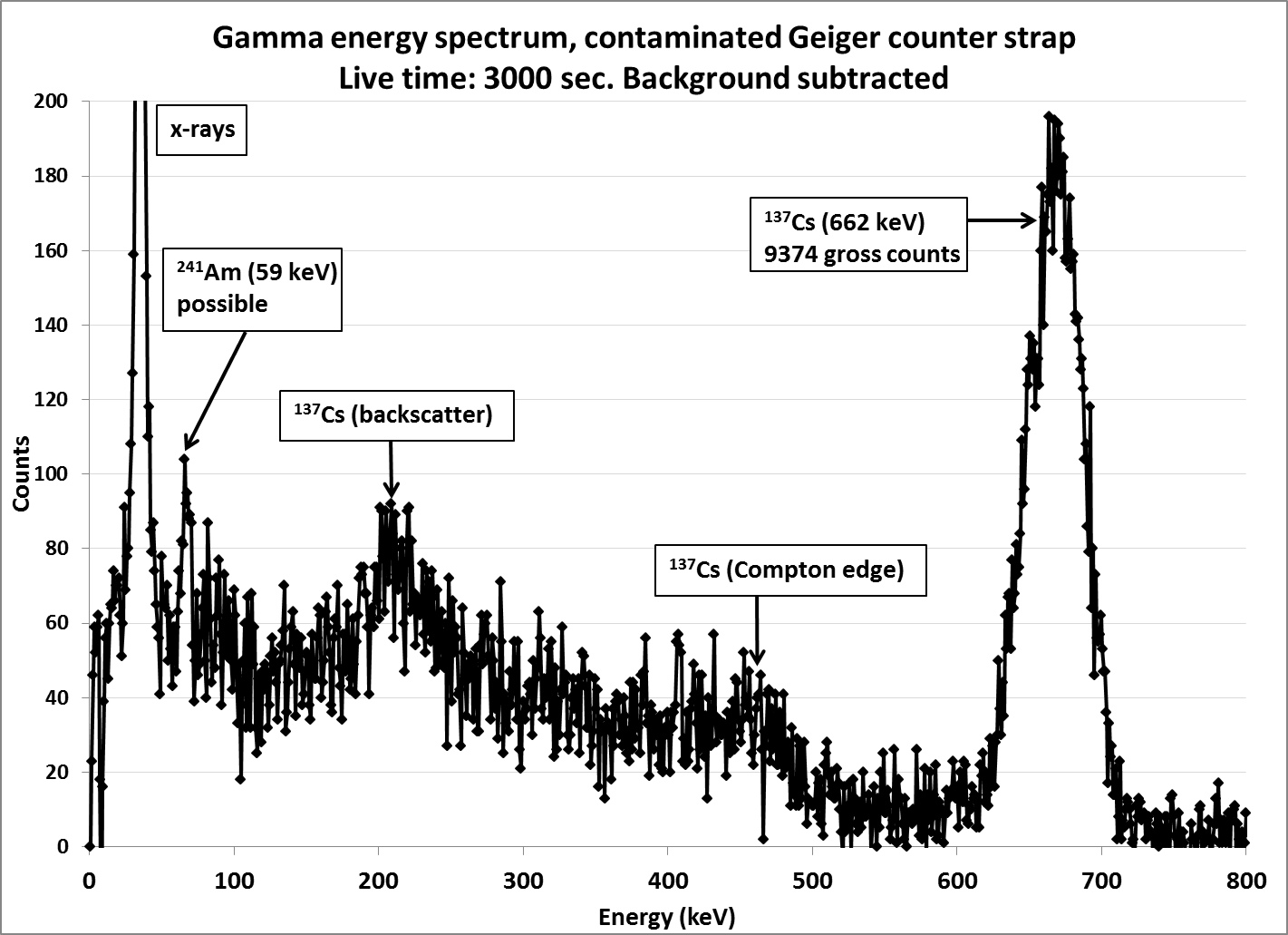
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| --- | --- | --- | --- | --- | --- | --- | --- |
| **Company** | **Detector name** | **Type** | **Price** | **Potential Competitor** | **Gamma** | **Neutron** | **Notes** |
| Polimaster | PM1703GNB | PRD | $3,200 | Yes | Yes | Yes | 1) Can search for radioactive and nuclear materials |
| Polimaster | PM1703GNM | PRD |  | Yes | Yes | Yes | 1) Can search for radioactive and nuclear materials |
| Polimaster | PM1703M/MA/MB | PRD |  | Yes | Yes |  | 1) Can search for gamma and provide dose rates |
| Polimaster | PM1703MO-1/MO-2/MO-1BT | PRD |  | Yes | Yes |  | 1) Has two detection modules 2) Can search for gamma and provide dose rates |
| Polimaster | Spectroscopic Personal Radiation Detectors PM1704 (Basic) | SPRD |  | Yes | Yes |  | 1) Has CsI(TI) scintillator and creates gamma-spectra 2) Identify sources |
| Polimaster | Spectroscopic Personal Radiation Detectors PM1704 A-GN | SPRD |  | Yes | Yes | Yes | 1) Has two detectors spectroscopic gamma (CsI(TI) and neutron detector |
| Polimaster | Spectroscopic Personal Radiation Detectors PM1704 A-GNM | SPRD | $4,187 | Yes | Yes | Yes | 1) Has three detectors two for gamma and one for neutrons CsI(Tl), GM tube and Li6I(Eu) |
| Polimaster | Spectroscopic Personal Radiation Detectors PM1704 A-M | SPRD |  | Yes | Yes |  | 1) Equipped with two gamma-detectors spectroscopic CsI(Tl) and GM tube 2) Has a long range to measure exposure and rate |
| Polimaster | Spectroscopic Personal Radiation Detectors PM1704 GN | SPRD | $3,987 | Yes | Yes | Yes | 1) Adds Li6I(Eu) detector for neutrons |
| Polimaster | Spectroscopic Personal Radiation Detectors PM1704 M | SPRD |  | Yes | Yes |  | 1) Adds a GM tube to expand dose rate measurement over basic version |

**Appendix 4.1:** Detailed Competitor and Individual Product Analysis (continued)

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| **Company** | **Detector name** | **Type** | **Price** | **Potential Competitor** | **Gamma** | **Neutron** | **Notes** |
| Polimaster | Spectroscopic Personal Radiation Detectors PM1704A | SPRD | $3,987 | Yes | Yes |  | 1) Basic gamma model with spectroscopic CsI(Tl) detector |
| Radcomm Systems | Mspec | Handheld |  | Yes | Yes |  | 1) Appears to be more for scanning material to check for and categorize categorizes the result as Industrial, Medical or NORM |
| RAE Systems | DoseRAE Pro | Handheld |  | Potentially | Yes |  | 1) For response to gamma ray threats |
| RAE Systems | GammaRAE II R | PRD |  | Yes | Yes |  | 1) For first responders has BlueTooth connectivity and can allows real time threat monitoring with ProRAE Guardian software |
| RAE Systems | NeutronRAE II | PRD | $2,995 | Yes | Yes | Yes |  |
| Saphymo | MiniTRACE Gamma S10 / S100 | Handheld |  | Yes | Yes |  | 1) Detector that can be used for homeland security purposes |
| Sensor Technology Engineering | HRM-Handheld Radiation Monitor | Handheld | $5,500 | Yes | yes | Yes | 1) Can detect gamma and thermal neutrons |
| Sensor Technology Engineering | Radiation Pager | Handheld |  | Yes | yes |  | 1) Detector with PM tube and Scintillator |
| Sensor Technology Engineering | Radiation Pager-S | Handheld |  | Yes | yes |  | 1) More advanced version of the original Radiation Pager |
| Technical Associates Nuclear Instruments and Systems | DSI-2GN | PRD | $3,950 | Yes | Yes | Yes | 1) Uses a BGO Scintillator |
| Thermo Fisher Scientific | RadEy GF/GF-10 Personal Radiation Detectors | Handheld |  | Potentially | Yes |  |  |
| Thermo Fisher Scientific | RadEye B20 and B20-ER Multi-Purpose Survey Meters | Handheld |  | Potentially | Yes | no |  |

**Appendix 4.1:** Detailed Competitor and Individual Product Analysis (continued)

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| **Company** | **Detector name** | **Type** | **Price** | **Potential Competitor** | **Gamma** | **Neutron** | **Notes** |
| Thermo Fisher Scientific | RadEye G Ex series Personal Radiation Detectors | Handheld |  | Yes | Yes |  | 1) For use in environments that may have explosives present |
| Thermo Fisher Scientific | RadEye G/G-10 Personal Dose Rate Meters | Handheld |  | Yes | Yes |  | 1) For first responders to measure gamma and x-ray dose rates |
| Thermo Fisher Scientific | RadEye GN Gamma Neutron Pagers | PRDs | $3,250 | Yes | Yes | Yes |  |
| Thermo Fisher Scientific | RadEye GN+ Gamma Neutron Pagers | PRDs | $3,950 | Yes | Yes | Yes |  |
| Thermo Fisher Scientific | RadEye NL Personal Highly Sensitive Neutron Radiation Detectors | PRD | $2,420 | No | No | Yes | 1) This is just a neutron detector |
| Thermo Fisher Scientific | RadEye SPRD-GN Spectroscopic Personal Radiation Detector | SPRD | $5,000 | Yes | Yes | Yes | 1) Similar to RadEye SPRD but can detect thermal neutrons |
| Thermo Fisher Scientific | RadEye X Series Survey Meters | Handheld |  | Potentially | Yes |  | 1) Essentially operates as a survey meter |
| Thermo Fisher Scientific | RadEyeSPRD Spectroscopic Personal Radiation Detector | SPRD | $3,950 | Yes | Yes | No | 1) This is a SPRD that could be a direct competitor |



**Table 4.1:** Total Competitor Product Offerings

|  |  |
| --- | --- |
| **Company** | **Total Products** |
| Polimaster | 23 |
| Thermo Fisher Scientific | 10 |
| Mirion Technologies | 5 |
| Arrow Tech | 3 |
| FLIR | 3 |
| RAE Systems | 3 |
| Sensor Technology Engineering | 3 |
| Berkeley Nucleonics Corporation | 2 |
| Bubble Technology Industries, Inc. | 1 |
| Canberra | 1 |
| Environmental Instruments Canada | 1 |
| Kromek | 1 |
| Passport Systems | 1 |
| Radcomm Systems | 1 |
| Saphymo | 1 |
| Technical Associates Nuclear Instruments and Systems | 1 |

**Table 4.2:** Total Competitor Product Offerings from DHS Research Study

|  |  |  |
| --- | --- | --- |
| **Company** | **Detector Type** | **Total Products** |
| PoliMaster | PRD | 4 |
| Mirion Technologies | PRD | 1 |
| Technical Associates Nuclear Instruments and Systems | PRD | 1 |
| RAE Systems | PRD | 1 |
| Sensor Technology Engineering | PRD | 1 |
| Thermo Scientific | PRD | 3 |
| **Total PRD** | **PRD** | **11** |
| FLIR | SPRD | 1 |
| Mirion Technologies | SPRD | 1 |
| PoliMaster | SPRD | 4 |
| RadComm | SPRD | 1 |
| Thermo Scientific | SPRD | 2 |
| **Total SPRD** | **SPRD** | **9** |
| **TOTAL DETECTORS** | **PRD + SPRD** | **20** |

**Table 4.3:** Average Detector Costs from DHS Study

|  |  |  |
| --- | --- | --- |
| **Detector Type** | **Average Cost** | **Total Detectors** |
| Average PRD Cost | $3,478 | 11 |
| Average SPRD Cost | $5,237 | 9 |
| **Average Detector Cost** | **$4,270** | **20** |

**Table 3.1:** Market Size, Unit Sales and Revenue (0.5% to 2% of Market)

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Utilization** | 0.50% | 1.00% | 1.50% | 2.00% |
| **Total Units Sold** | 3,128 | 6,257 | 9,385 | 12,513 |
| **Total Revenue** | $6,100,263 | $12,200,526 | $18,300,789 | $24,401,052 |

**Table 3.2:** Market Size, Unit Sales and Revenue (4% to 12% of Market)

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Utilization** | 4.00% | 6.00% | 8.00% | 10.00% | 12.00% |
| **Total Units Sold** | 25,027 | 37,540 | 50,053 | 62,567 | 75,080 |
| **Total Revenue** | $48,802,104 | $73,203,156 | $97,604,208 | $122,005,260 | $146,406,312 |

**Table 3.5:** Industry Analysis

|  |  |  |
| --- | --- | --- |
| **Competitors** | | |
| Yes | Offers Competitive Product | 9 |
| Potential | Has Technological Capability to Develop Product | 19 |
| No | Most Likely Not Competitor | 49 |

**Figure 3.3:** Estimated Size of Firms in Industry

**Appendix**

**Appendix 1: The Company**

**Appendix 2: The Product**

**Appendix 3: Market and Industry Analysis**

**Appendix 3.1:** Total Sworn Officers

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **State** | **Sworn Officers** | **State** | **Sworn Officers** | **State** | **Sworn Officers** |
| Alabama | 9,329 | Kentucky | 6,280 | North Dakota | 1,024 |
| Alaska | 821 | Louisiana | 12,556 | Ohio | 22,785 |
| Arizona | 14,629 | Maine | 2,000 | Oklahoma | 6,220 |
| Arkansas | 5,528 | Maryland | 11,016 | Oregon | 5,285 |
| California | 66,866 | Massachusetts | 15,461 | Pennsylvania | 20,572 |
| Colorado | 9,649 | Michigan | 15,748 | Rhode Island | 2,527 |
| Connecticut | 6,838 | Minnesota | 7,887 | South Carolina | 9,431 |
| Delaware | 1,087 | Mississippi | 5,662 | South Dakota | 1,299 |
| District of Columbia | 3,070 | Missouri | 11,773 | Tennessee | 13,411 |
| Florida | 41,714 | Montana | 1,460 | Texas | 45,582 |
| Georgia | 20,277 | Nebraska | 2,921 | Utah | 3,788 |
| Hawaii | 2,983 | Nevada | 5,323 | Vermont | 647 |
| Idaho | 2,701 | New Hampshire | 2,514 | Virginia | 16,008 |
| Illinois | 33,004 | New Jersey | 24,459 | Washington | 9,877 |
| Indiana | 11,138 | New Mexico | 3,825 | West Virginia | 2,201 |
| Iowa | 4,483 | New York | 64,578 | Wisconsin | 11,439 |
| Kansas | 6,054 | North Carolina | 18,671 | Wyoming | 1,267 |
| **Total 625,668** | | | | | |

**Appendix 5: Overall Schedule (5 year plan)**

**Appendix 6: Management and Human Resources**

**Appendix 7: Operations Plan**

**Appendix 7.1:** Estimated Salary Levels and Total Compensation

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Employee Type** | **Level** | **Salary (Low)** | **Salary (High)** | **Benefits (raw)** | **Benefits (adjusted)** | **Total Compensation (Low)** | **Total Compensation (High)** | **Optional Benefits** |
| CEO | 1 | $15,000 | $450,000 | $65,625 | $21,875 | $140,625 | $515,625 | Equity |
| CEO | 2 | $15,000 | $550,000 | $79,375 | $26,250 | $164,375 | $629,375 | Equity |
| CEO | 3 | $20,000 | $650,000 | $93,750 | $43,750 | $193,750 | $743,750 | Equity |
| CTO | 1 | $15,000 | $350,000 | $53,125 | $20,625 | $128,125 | $403,125 | Equity |
| CTO | 2 | $15,000 | $400,000 | $60,000 | $25,000 | $140,000 | $460,000 | Equity |
| CTO | 3 | $20,000 | $450,000 | $68,125 | $36,875 | $163,125 | $518,125 | Equity |
| VP of Sales | 1 | $15,000 | $300,000 | $46,875 | $20,625 | $121,875 | $346,875 | Stock |
| VP of Sales | 2 | $15,000 | $350,000 | $53,750 | $25,000 | $133,750 | $403,750 | Stock |
| VP of Sales | 3 | $15,000 | $400,000 | $61,875 | $36,875 | $156,875 | $461,875 | Stock |
| VP of Engineering | 1 | $15,000 | $300,000 | $46,875 | $20,625 | $121,875 | $346,875 | Stock |
| VP of Engineering | 2 | $15,000 | $350,000 | $53,750 | $25,000 | $133,750 | $403,750 | Stock |
| VP of Engineering | 3 | $20,000 | $400,000 | $61,875 | $36,875 | $156,875 | $461,875 | Stock |
| Engineer | 1 | $60,000 | $125,000 | $23,125 | $18,750 | $83,125 | $148,125 | Stock |
| Engineer | 2 | $70,000 | $150,000 | $27,500 | $23,750 | $97,500 | $177,500 | Stock |
| Engineer | 3 | $85,000 | $175,000 | $32,500 | $33,125 | $117,500 | $207,500 | Stock |
| Sales | 1 | $35,000 | $100,000 | $16,875 | $12,500 | $51,875 | $116,875 | Commission + Stock |
| Sales | 2 | $45,000 | $110,000 | $19,375 | $15,625 | $64,375 | $129,375 | Commission + Stock |
| Sales | 3 | $60,000 | $120,000 | $22,500 | $22,500 | $82,500 | $142,500 | Commission + Stock |
| Administrative Assistant | 1 | $35,000 | $70,000 | $13,125 | $15,625 | $48,125 | $83,125 | Stock |
| Administrative Assistant | 2 | $40,000 | $75,000 | $14,375 | $15,625 | $54,375 | $89,375 | Stock |
| Administrative Assistant | 3 | $45,000 | $80,000 | $15,625 | $15,625 | $60,625 | $95,625 | Stock |
| IT Staff | 1 | $60,000 | $125,000 | $23,125 | $18,750 | $83,125 | $148,125 | Stock |
| IT Staff | 2 | $70,000 | $150,000 | $27,500 | $23,750 | $97,500 | $177,500 | Stock |
| IT Staff | 3 | $85,000 | $175,000 | $32,500 | $33,125 | $117,500 | $207,500 | Stock |

**Appendix 7.2:** Yearly Budget Allocation for $100k and $75k

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **$100 K** | |  | **$75 K** | |
| **Item** | **Budget** |  | **Item** | **Budget** |
| CEOe | $45,000 |  | CEOe | $25,000 |
| Contract Labor (1099) |  |  | Contract Labor (1099) |  |
| Electrical Engineer | $12,000 |  | Electrical Engineer | $12,000 |
| Nuclear Engineer | $6,000 |  | Nuclear Engineer | $6,000 |
| Engineering Supplies | $7,000 |  | Engineering Supplies | $7,000 |
| Equipment | $5,000 |  | Equipment | $2,600 |
| Software | $5,000 |  | Software | $5,000 |
| Office Rent | $4,800 |  | Office Rent | $4,800 |
| Utilities ($200/month) | $2,400 |  | Utilities ($200/month) | $2,400 |
| Office Supplies | $1,000 |  | Office Supplies | $1,000 |
| Travel | $4,200 |  | Travel | $4,200 |
| Legal Fees | $7,600 |  | Legal Fees | $5,000 |
| **TOTAL** | **$100,000** |  | **TOTAL** | **$75,000** |

**Appendix 7.3:** Yearly Budget Allocation for $200k and $150k

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **$200 K** | |  | **$150 K** | |
| **Item** | **Budget** |  | **Item** | **Budget** |
| CEOe | $64,000 |  | CEOe | $48,000 |
| Contract Labor (1099) |  |  | Contract Labor (1099) |  |
| Electrical Engineer | $30,000 |  | Electrical Engineer | $15,000 |
| Nuclear Engineer | $12,000 |  | Nuclear Engineer | $6,000 |
| Design Engineer | $4,000 |  | Design Engineer | $4,000 |
| Manufacturing Engineer | $8,000 |  | Manufacturing Engineer | $8,000 |
| Graphic Designer | $2,000 |  | Engineering Supplies | $12,000 |
| Engineering Supplies | $23,000 |  | Equipment | $8,000 |
| Equipment | $8,000 |  | Software | $7,400 |
| Software | $7,200 |  | Office Rent | $18,000 |
| Office Rent | $18,000 |  | Utilities ($600/month) | $7,200 |
| Utilities ($600/month) | $7,200 |  | Liability Insurance | $1,000 |
| Liability Insurance | $1,000 |  | Office Supplies | $2,000 |
| Office Supplies | $2,000 |  | Travel | $8,400 |
| Travel | $8,600 |  | Legal Fees | $5,000 |
| Legal Fees | $5,000 |  | **TOTAL** | **$150,000** |
| **TOTAL** | **$200,000** |  |  |  |
|  |  |  |  |  |

**Appendix 7.4:** Yearly Budget Allocation for $300K and $250K

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **$300 K** | |  | **$250 K** | |
| **Item** | **Budget** |  | **Item** | **Budget** |
| CEOe | $70,000 |  | CEOe | $60,000 |
| Engineer | $80,000 |  | Engineer | $70,000 |
| Contract Labor (1099) |  |  | Contract Labor (1099) |  |
| Electrical Engineer | $30,000 |  | Electrical Engineer | $20,000 |
| Nuclear Engineer | $15,000 |  | Nuclear Engineer | $6,000 |
| Design Engineer | $4,000 |  | Design Engineer | $4,000 |
| Manufacturing Engineer | $8,000 |  | Manufacturing Engineer | $8,000 |
| Graphic Designer | $4,000 |  | Graphic Designer | $2,000 |
| Engineering Supplies | $23,000 |  | Engineering Supplies | $23,000 |
| Equipment | $10,000 |  | Equipment | $8,000 |
| Software | $7,200 |  | Software | $7,200 |
| Office Rent | $18,000 |  | Office Rent | $18,000 |
| Utilities ($600/month) | $7,200 |  | Utilities ($600/month) | $7,200 |
| Liability Insurance | $1,000 |  | Liability Insurance | $1,000 |
| Office Supplies | $2,000 |  | Office Supplies | $2,000 |
| Travel | $8,600 |  | Travel | $8,600 |
| Legal Fees | $12,000 |  | Legal Fees | $5,000 |
| **TOTAL** | **$300,000** |  | **TOTAL** | **$250,000** |
|  |  |  |  |  |

**Appendix 7.5:** Yearly Budget Allocation for $400K and $350K

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **$400 K** | |  | **$350 K** | |
| **Item** | **Budget** |  | **Item** | **Budget** |
| CEOe | $75,000 |  | CEOe | $70,000 |
| Engineer | $85,000 |  | Engineer | $80,000 |
| Account Executive | $75,000 |  | Account Executive | $75,000 |
| Contract Labor (1099) |  |  | Contract Labor (1099) |  |
| Electrical Engineer | $30,000 |  | Electrical Engineer | $9,400 |
| Nuclear Engineer | $10,000 |  | Nuclear Engineer | $2,000 |
| Design Engineer | $4,000 |  | Design Engineer | $2,000 |
| Manufacturing Engineer | $8,000 |  | Manufacturing Engineer | $2,000 |
| Graphic Designer | $4,400 |  | Graphic Designer | $1,000 |
| Engineering Supplies | $23,000 |  | Engineering Supplies | $23,000 |
| Equipment | $8,000 |  | Equipment | $8,000 |
| Software | $7,200 |  | Software | $7,200 |
| Office Rent | $24,000 |  | Office Rent | $24,000 |
| Utilities ($600/month) | $9,600 |  | Utilities ($800/month) | $9,600 |
| Liability Insurance | $2,000 |  | Liability Insurance | $2,000 |
| Office Supplies | $4,000 |  | Office Supplies | $4,000 |
| Travel | $16,800 |  | Travel | $16,800 |
| Legal Fees | $14,000 |  | Legal Fees | $14,000 |
| **TOTAL** | **$400,000** |  | **TOTAL** | **$350,000** |

**Appendix 7.6:** Yearly Budget Allocation for $600K and $500K

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **$600 K** | |  | **$500 K** | |
| **Item** | **Budget** |  | **Item** | **Budget** |
| CEOe | $120,000 |  | CEOe | $100,000 |
| Engineer | $100,000 |  | Engineer | $85,000 |
| Engineer | $100,000 |  | Engineer | $85,000 |
| Account Executive | $80,000 |  | Account Executive | $75,000 |
| Administrative Assistant | $50,000 |  | Contract Labor (1099) |  |
| Contract Labor (1099) |  |  | Electrical Engineer | $15,000 |
| Electrical Engineer | $19,400 |  | Nuclear Engineer | $6,000 |
| Nuclear Engineer | $8,000 |  | Design Engineer | $2,000 |
| Design Engineer | $4,000 |  | Manufacturing Engineer | $4,000 |
| Manufacturing Engineer | $8,000 |  | Graphic Designer | $4,000 |
| Graphic Designer | $2,000 |  | Engineering Supplies | $26,000 |
| Engineering Supplies | $23,000 |  | Equipment | $10,000 |
| Equipment | $8,000 |  | Software | $7,200 |
| Software | $7,200 |  | Office Rent | $24,000 |
| Office Rent | $24,000 |  | Utilities ($600/month) | $9,600 |
| Utilities ($800/month) | $9,600 |  | Liability Insurance | $2,000 |
| Liability Insurance | $2,000 |  | Office Supplies | $6,000 |
| Office Supplies | $4,000 |  | Travel | $25,200 |
| Travel | $16,800 |  | Legal Fees | $14,000 |
| Legal Fees | $14,000 |  | **TOTAL** | **$500,000** |
| **TOTAL** | **$600,000** |  |  |  |

**Appendix 7.7:** Yearly Budget Allocation for $800K and $700K

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **$800 K** | |  | **$700 K** | |
| **Item** | **Budget** |  | **Item** | **Budget** |
| CEOe | $120,000 |  | CEOe | $120,000 |
| Engineer | $110,000 |  | Engineer | $100,000 |
| Engineer | $110,000 |  | Engineer | $100,000 |
| Account Executive | $85,000 |  | Account Executive | $80,000 |
| Account Executive | $85,000 |  | Account Executive | $80,000 |
| Administrative Assistant | $70,000 |  | Administrative Assistant | $50,000 |
| Contract Labor (1099) |  |  | Contract Labor (1099) |  |
| Electrical Engineer | $35,000 |  | Electrical Engineer | $25,000 |
| Nuclear Engineer | $10,000 |  | Nuclear Engineer | $8,000 |
| Design Engineer | $6,000 |  | Design Engineer | $4,000 |
| Manufacturing Engineer | $8,000 |  | Manufacturing Engineer | $8,000 |
| Graphic Designer | $4,000 |  | Graphic Designer | $4,000 |
| Engineering Supplies | $23,000 |  | Engineering Supplies | $23,000 |
| Equipment | $20,000 |  | Equipment | $8,000 |
| Software | $14,000 |  | Software | $7,200 |
| Office Rent | $31,200 |  | Office Rent | $31,200 |
| Utilities ($1000/month) | $12,000 |  | Utilities ($800/month) | $9,600 |
| Liability Insurance | $2,000 |  | Liability Insurance | $2,000 |
| Office Supplies | $5,000 |  | Office Supplies | $5,000 |
| Travel | $33,600 |  | Travel | $21,000 |
| Legal Fees | $16,200 |  | Legal Fees | $14,000 |
| **TOTAL** | **$800,000** |  | **TOTAL** | **$700,000** |

**Appendix 7.7:** Yearly Budget Allocation for $1M and $900K

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **$1 M** | |  | **$900 K** | |
| **Item** | **Budget** |  | **Item** | **Budget** |
| CEOe | $140,000 |  | CEOe | $120,000 |
| Engineer | $120,000 |  | Engineer | $110,000 |
| Engineer | $120,000 |  | Engineer | $110,000 |
| Engineer | $120,000 |  | Engineer | $110,000 |
| Account Executive | $85,000 |  | Account Executive | $85,000 |
| Account Executive | $85,000 |  | Account Executive | $85,000 |
| Administrative Assistant | $75,000 |  | Administrative Assistant | $75,000 |
| Interns | $40,000 |  | Contract Labor (1099) |  |
| Contract Labor (1099) |  |  | Electrical Engineer | $20,000 |
| Electrical Engineer | $20,000 |  | Nuclear Engineer | $10,000 |
| Nuclear Engineer | $10,000 |  | Design Engineer | $6,000 |
| Design Engineer | $6,000 |  | Manufacturing Engineer | $8,000 |
| Manufacturing Engineer | $8,000 |  | Graphic Designer | $4,000 |
| Graphic Designer | $4,000 |  | Engineering Supplies | $23,000 |
| Engineering Supplies | $23,000 |  | Equipment | $20,000 |
| Equipment | $20,000 |  | Software | $14,000 |
| Software | $16,000 |  | Office Rent | $31,200 |
| Office Rent | $32,000 |  | Utilities ($800/month) | $12,000 |
| Utilities ($800/month) | $12,000 |  | Liability Insurance | $2,000 |
| Liability Insurance | $2,400 |  | Office Supplies | $5,000 |
| Office Supplies | $8,000 |  | Travel | $33,600 |
| Travel | $33,600 |  | Legal Fees | $16,200 |
| Legal Fees | $20,000 |  | **TOTAL** | **$900,000** |
| **TOTAL** | **$1,000,000** |  |  |  |

**Appendix 7.8:** Yearly Budget Allocation for $1.5M and $1.25M

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **$1.5 M** | |  | **$1.25 M** | |
| **Item** | **Budget** |  | **Item** | **Budget** |
| CEOe | $140,000 |  | CEOe | $140,000 |
| CTO | $140,000 |  | CTO | $120,000 |
| Senior Electrial Engineer | $140,000 |  | ElectricalEngineer | $120,000 |
| Electrical Engineer | $120,000 |  | ElectricalEngineer | $120,000 |
| ElectricalEngineer | $120,000 |  | ElectricalEngineer | $120,000 |
| Software Engineer | $120,000 |  | Account Executive | $85,000 |
| Account Executive | $85,000 |  | Account Executive | $85,000 |
| Account Executive | $85,000 |  | Account Executive | $85,000 |
| Account Executive | $85,000 |  | Administrative Assistant | $75,000 |
| Administrative Assistant | $75,000 |  | Interns | $40,000 |
| Administrative Assistant | $75,000 |  | Contract Labor (1099) |  |
| Interns | $40,000 |  | Electrical Engineer | $37,000 |
| Contract Labor (1099) |  |  | Nuclear Engineer | $10,000 |
| Electrical Engineer | $18,600 |  | Design Engineer | $6,000 |
| Nuclear Engineer | $10,000 |  | Manufacturing Engineer | $20,000 |
| Design Engineer | $6,000 |  | Graphic Designer | $20,000 |
| Manufacturing Engineer | $20,000 |  | Engineering Supplies | $23,000 |
| Graphic Designer | $20,000 |  | Equipment | $20,000 |
| Engineering Supplies | $30,000 |  | Software | $16,000 |
| Equipment | $30,000 |  | Office Rent | $32,000 |
| Software | $20,000 |  | Utilities ($1000/month) | $12,000 |
| Office Rent | $32,000 |  | Liability Insurance | $2,400 |
| Utilities ($1000/month) | $12,000 |  | Office Supplies | $8,000 |
| Liability Insurance | $2,400 |  | Travel | $33,600 |
| Office Supplies | $12,000 |  | Legal Fees | $20,000 |
| Travel | $42,000 |  | **TOTAL** | **$1,250,000** |
| Legal Fees | $20,000 |  |  |  |
| **TOTAL** | **$1,500,000** |  |  |  |

**Appendix 7.9:** Yearly Budget Allocation for $2.5M and $1.75M

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **$2.5 M** | |  | **$1.75 M** | |
| **Item** | **Budget** |  | **Item** | **Budget** |
| CEOe | $175,000 |  | CEOe | $160,000 |
| CTOe | $160,000 |  | CTO | $140,000 |
| CFOe | $160,000 |  | CFO | $140,000 |
| VP of Engineeringe | $150,000 |  | Senior Electrial Engineer | $140,000 |
| VP of Salese | $150,000 |  | Electrical Engineer | $120,000 |
| Senior Electrical Engineer | $140,000 |  | ElectricalEngineer | $120,000 |
| Nuclear Engineer | $130,000 |  | Software Engineer | $120,000 |
| Electrical Engineer | $130,000 |  | Account Executive | $85,000 |
| Electrical Engineer | $130,000 |  | Account Executive | $85,000 |
| Electrical Engineer | $130,000 |  | Account Executive | $85,000 |
| Software Engineer | $120,000 |  | Administrative Assistant | $75,000 |
| Business/Accountant | $100,000 |  | Administrative Assistant | $75,000 |
| Account Executive | $85,000 |  | Interns | $60,000 |
| Account Executive | $85,000 |  | Contract Labor (1099) |  |
| Account Executive | $85,000 |  | Electrical Engineer | $26,000 |
| Administrative Assistant | $70,000 |  | Nuclear Engineer | $20,000 |
| Interns | $60,000 |  | Design Engineer | $6,000 |
| Contract Labor |  |  | Manufacturing Engineer | $8,000 |
| Electrical Engineer | $30,000 |  | Graphic Designer | $12,000 |
| Nuclear Engineer | $7,000 |  | Engineering Supplies | $36,400 |
| Design Engineer | $10,000 |  | Equipment | $40,000 |
| Manufacturing Engineer | $10,000 |  | Software | $28,800 |
| Graphic Designer | $10,000 |  | Office Rent | $48,000 |
| Engineering Supplies | $36,400 |  | Utilities ($1200/month) | $14,400 |
| Equipment | $40,000 |  | Liability Insurance | $4,800 |
| Software | $28,800 |  | Office Supplies | $16,000 |
| Office Rent | $48,000 |  | Travel | $54,600 |
| Utilities ($1800/month) | $21,600 |  | Legal Fees | $30,000 |
| Liability Insurance | $12,000 |  | **TOTAL** | **$1,750,000** |
| Office Supplies | $32,000 |  |  |  |
| Travel | $109,200 |  |  |  |
| Legal Fees | $45,000 |  |  |  |
| **TOTAL** | **$2,500,000** |  |  |  |

**Appendix 7.10:** Yearly Budget Allocation for $3.75M and $3M

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **$3.75 M** | |  | **$3 M** | |
| **Item** | **Budget** |  | **Item** | **Budget** |
| CEOe | $175,000 |  | CEOe | $175,000 |
| CTOe | $160,000 |  | CTOe | $160,000 |
| CFOe | $160,000 |  | CFOe | $160,000 |
| CMOe | $160,000 |  | CMOe | $160,000 |
| VP of Engineeringe | $150,000 |  | VP of Engineeringe | $150,000 |
| VP of Salese | $150,000 |  | VP of Salese | $150,000 |
| Senior Electrical Engineer | $140,000 |  | Senior Electrical Engineer | $140,000 |
| Nuclear Engineer | $130,000 |  | Nuclear Engineer | $130,000 |
| Electrical Engineer | $130,000 |  | Electrical Engineer | $130,000 |
| Electrical Engineer | $130,000 |  | Electrical Engineer | $130,000 |
| Electrical Engineer | $130,000 |  | Electrical Engineer | $130,000 |
| Electrical Engineer | $130,000 |  | Electrical Engineer | $130,000 |
| Electrical Engineer | $130,000 |  | Software Engineer | $120,000 |
| Software Engineer | $120,000 |  | Software Engineer | $120,000 |
| Software Engineer | $120,000 |  | Account Executive | $85,000 |
| Account Executive | $85,000 |  | Account Executive | $85,000 |
| Account Executive | $85,000 |  | Account Executive | $85,000 |
| Account Executive | $85,000 |  | Account Executive | $85,000 |
| Account Executive | $85,000 |  | Account Executive | $85,000 |
| Account Executive | $85,000 |  | Administrative Assistant | $70,000 |
| Administrative Assistant | $70,000 |  | Interns | $80,000 |
| Finance/Accounting | $100,000 |  | Contract Labor | $40,000 |
| Human Resources | $95,000 |  | Engineering Supplies | $46,000 |
| IT Staff | $120,000 |  | Equipment | $45,400 |
| Marketing | $75,000 |  | Software | $36,000 |
| Office Manager | $120,000 |  | Office Rent | $52,800 |
| Interns | $80,000 |  | Utilities | $21,600 |
| Contract Labor | $40,000 |  | Liability Insurance | $12,000 |
| Engineering Supplies | $46,000 |  | Office Supplies | $32,000 |
| Equipment | $45,400 |  | Travel | $109,200 |
| Software | $36,000 |  | Legal Fees | $45,000 |
| Office Rent | $52,800 |  | **TOTAL** | **$3,000,000** |
| Utilities | $21,600 |  |  |  |
| Liability Insurance | $12,800 |  |  |  |
| Office Supplies | $32,000 |  |  |  |
| Travel | $218,400 |  |  |  |
| Legal Fees | $45,000 |  |  |  |
| **TOTAL** | **$3,750,000** |  |  |  |

**Appendix 7.11:** Yearly Budget Allocation for $5M and $4M

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **$5 M** | |  | **$4 M** | |
| **Item** | **Budget** |  | **Item** | **Budget** |
| CEOe | $200,000 |  | CEOe | $195,000 |
| CTOe | $180,000 |  | CTOe | $180,000 |
| CFOe | $180,000 |  | CFOe | $180,000 |
| CMOe | $180,000 |  | CMOe | $180,000 |
| VP of Engineering | $160,000 |  | VP of Engineeringe | $160,000 |
| VP of Salese | $160,000 |  | VP of Salese | $160,000 |
| Senior Engineer | $155,000 |  | Senior Electrical Engineer | $155,000 |
| Nuclear Engineer | $140,000 |  | Nuclear Engineer | $140,000 |
| Electrical Engineer (6) | $840,000 |  | Electrical Engineer (5) | $700,000 |
| Software Engineer (3) | $390,000 |  | Software Engineer (3) | $390,000 |
| Account Executive (6) | $510,000 |  | Account Executive (5) | $425,000 |
| Administrative Assistant | $70,000 |  | Administrative Assistant | $70,000 |
| Graphic Designer | $70,000 |  | Finance/Accounting | $100,000 |
| Finance/Accounting | $100,000 |  | Human Resources | $95,000 |
| Human Resources | $95,000 |  | IT Staff | $120,000 |
| IT and Web | $120,000 |  | Marketing | $75,000 |
| Marketing | $100,000 |  | Office Manager | $120,000 |
| Office Manager | $120,000 |  | Interns | $80,000 |
| Interns | $95,000 |  | Contract Labor | $35,000 |
| Contract Labor | $60,000 |  | Engineering Supplies | $46,000 |
| Engineering Supplies | $95,000 |  | Equipment | $45,400 |
| Equipment | $65,000 |  | Software | $42,000 |
| Software | $96,000 |  | Office Rent | $62,400 |
| Office Rent | $168,000 |  | Utilities | $36,000 |
| Utilities | $48,000 |  | Liability Insurance | $12,000 |
| Liability Insurance | $22,200 |  | Office Supplies | $32,000 |
| Office Supplies | $64,000 |  | Travel | $119,200 |
| Travel | $436,800 |  | Legal Fees | $45,000 |
| Legal Fees | $80,000 |  | **TOTAL** | **$4,000,000** |
| **TOTAL** | **$5,000,000** |  |  |  |

**Appendix 7.12:** Yearly Budget Allocation for $7.5M and $6M

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **$7.5 M** | |  | **$6 M** | |
| **Item** | **Budget** |  | **Item** | **Budget** |
| CEOe | $240,000 |  | CEOe | $200,000 |
| CTOe | $200,000 |  | CTOe | $180,000 |
| CFOe | $200,000 |  | CFOe | $180,000 |
| CMOe | $200,000 |  | CMOe | $180,000 |
| VP of Engineering | $180,000 |  | VP of Engineering | $160,000 |
| VP of Salese | $180,000 |  | VP of Salese | $160,000 |
| Senior Engineer | $170,000 |  | Senior Engineer | $155,000 |
| Nuclear Engineer (3) | $420,000 |  | Nuclear Engineer (2) | $280,000 |
| Electrical Engineer (9) | $1,260,000 |  | Electrical Engineer (8) | $1,120,000 |
| Software Engineer (5) | $725,000 |  | Software Engineer (4) | $540,000 |
| Account Executive (9) | $810,000 |  | Account Executive (8) | $720,000 |
| Administrative Assistant (2) | $160,000 |  | Administrative Assistant (2) | $160,000 |
| Finance/Accounting (2) | $200,000 |  | Graphic Designer | $70,000 |
| Graphic Designer | $70,000 |  | Finance/Accounting (2) | $200,000 |
| Finance/Accounting (2) | $200,000 |  | Human Resources | $95,000 |
| Human Resources | $95,000 |  | IT Staff | $120,000 |
| IT Staff | $120,000 |  | IT and Web | $120,000 |
| IT and Web | $120,000 |  | Marketing | $100,000 |
| Marketing (2) | $200,000 |  | Office Manager | $120,000 |
| Office Manager | $120,000 |  | Interns | $80,000 |
| Interns | $140,000 |  | Contract Labor | $10,000 |
| Contract Labor | $78,800 |  | Engineering Supplies | $80,000 |
| Engineering Supplies | $100,000 |  | Equipment | $65,000 |
| Equipment | $120,000 |  | Software | $86,000 |
| Software | $120,000 |  | Office Rent | $168,000 |
| Office Rent | $168,000 |  | Utilities | $48,000 |
| Utilities | $60,000 |  | Liability Insurance | $22,200 |
| Liability Insurance | $28,000 |  | Office Supplies | $64,000 |
| Office Supplies | $80,000 |  | Travel | $436,800 |
| Travel | $655,200 |  | Legal Fees | $80,000 |
| Legal Fees | $80,000 |  | **TOTAL** | **$6,000,000** |
| **TOTAL** | **$7,500,000** |  |  |  |

**Appendix 8: Marketing and Sales Strategy**

**Appendix 9: Financial and Economic Details**

**Appendix 10: Legal, Intellectual Property and Ethical Issues**

*\*This investment offer is intended as a guideline and if a legal offer is entered into this will be handled by RadAlert, the investor and their attorneys. The finalized offer will be the legal basis of all future dealings. Nothing in this document should be considered legally binding or intended as an offer. All negotiations will be finalized with the help of legal counsel and those legal documents will be the basis of all future dealings.*

**Appendix 11: Company Risks**

**Appendix 12: Venture Offering**

**Appendix 12.4:** Potential Venture Offerings

|  |  |  |  |
| --- | --- | --- | --- |
|  | **Offering 1** | **Offering 2** | **Offering 3** |
| **Investment Amount** | $150,000 | $250,000 | $500,000 |
| **Equity** | 10% | 16% | 20% |
| **Firm Valuation** | $1,500,000 | $1,562,000 | $2,500,000 |

**Appendix 12.1:** Investor Equity and Firm Valuation

|  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Investment Amount** | **10%** | **15%** | **20%** | **25%** | **30%** | **35%** | **40%** | **45%** | **50%** |
| **$150,000** | $1,500,000 | $1,000,000 | $750,000 | $600,000 | $500,000 | $428,571 | $375,000 | $333,333 | $300,000 |
| **$250,000** | $2,500,000 | $1,666,667 | $1,250,000 | $1,000,000 | $833,333 | $714,286 | $625,000 | $555,556 | $500,000 |
| **$500,000** | $5,000,000 | $3,333,333 | $2,500,000 | $2,000,000 | $1,666,667 | $1,428,571 | $1,250,000 | $1,111,111 | $1,000,000 |
| **$1,000,000** | $10,000,000 | $6,666,667 | $5,000,000 | $4,000,000 | $3,333,333 | $2,857,143 | $2,500,000 | $2,222,222 | $2,000,000 |
| **$1,500,000** | $15,000,000 | $10,000,000 | $7,500,000 | $6,000,000 | $5,000,000 | $4,285,714 | $3,750,000 | $3,333,333 | $3,000,000 |
| **$2,500,000** | $25,000,000 | $16,666,667 | $12,500,000 | $10,000,000 | $8,333,333 | $7,142,857 | $6,250,000 | $5,555,556 | $5,000,000 |
| **$5,000,000** | $50,000,000 | $33,333,333 | $25,000,000 | $20,000,000 | $16,666,667 | $14,285,714 | $12,500,000 | $11,111,111 | $10,000,000 |
| **$10,000,000** | $100,000,000 | $66,666,667 | $50,000,000 | $40,000,000 | $33,333,333 | $28,571,429 | $25,000,000 | $22,222,222 | $20,000,000 |

**Appendix 12.2:** Firm Valuation as a Function of Investment and Equity

|  |  |  |
| --- | --- | --- |
| **Investment Capital** | **Equity** | **Valuation** |
| $150,000 | 10% | $1,500,000 |
| $150,000 | 15% | $1,000,000 |
| $150,000 | 20% | $750,000 |
| $150,000 | 25% | $600,000 |
| $250,000 | 10% | $2,500,000 |
| $250,000 | 15% | $1,666,667 |
| $250,000 | 20% | $1,250,000 |
| $250,000 | 25% | $1,000,000 |
| $500,000 | 10% | $5,000,000 |
| $500,000 | 15% | $3,333,333 |
| $500,000 | 20% | $2,500,000 |
| $500,000 | 25% | $2,000,000 |

**Appendix 12.3:** Estimated Use of Investment Funds from $150 thousand to $5 million

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  | **Venture Capital** | **Staff** | **Office** | **Labor** | **Travel Budget** | **R and D** | **Legal** | **Rent Utilities** |
| **Level 1** | $150,000 | 1 | No | $1,800 | $10,470 | $13,900 | $10,480 | $1,800 |
| **Level 2** | $250,000 | 1 | No | $193,529 | $12,215 | $20,000 | $16,960 | $5,400 |
| **Level 3** | $500,000 | 2 | Yes | $355,058 | $13,960 | $20,000 | $22,440 | $104,688 |
| **Level 4** | $1,000,000 | 4 | Yes | $811,816 | $27,920 | $30,000 | $17,440 | $101,088 |
| **Level 5** | $1,500,000 | 6 | Yes | $1,274,345 | $43,625 | $45,000 | $17,440 | $101,088 |
| **Level 6** | $2,500,000 | 9 | Yes | $2,157,761 | $68,055 | $45,000 | $42,880 | $155,088 |
| **Level 7** | $5,000,000 | 12 | Yes | $4,431,004 | $90,740 | $120,000 | $82,200 | $227,088 |

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